

Mercury in Storm Sewer Sediment

at

**The Naval Air Warfare Center, Aircraft Division
Trenton, New Jersey**

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1.0 INTRODUCTION

This report summarizes the findings and selected alternative to address mercury in storm sewer sediment at the Naval Air Warfare Center, Aircraft Division, Trenton, NJ (NAWCADTRN). Figure 1 shows the general location of NAWCADTRN, while Figure 2 shows the location of facilities at the installation.

Under the Navy's Installation Restoration (IR) Program, suspected sites of environmental contamination at NAWCADTRN (formerly the Naval Air Propulsion Center (NAPC)) were investigated to verify the presence or absence of alleged contamination. As a follow-up to the Remedial Investigation (RI) which was completed in 1994, the NJDEP required NAWCADTRN to perform an Ecological Study on Gold Run to assess the impact that storm water run-off may have had on the downstream environment. Part of this study required the sampling of four storm water outfalls (OF-1, OF-2, OF-3, and OF-4) at NAWCADTRN (Figure 3).

Sampling of these outfalls was performed in December 1997. Elevated levels of mercury (above the freshwater sediment screening guidelines (Ontario Lowest Effects Level (LEL) and Severe Effects Level (SEL)) were reported for sediment samples taken from outfalls 1, 2, 3, and 4.

A subsequent analysis conducted in March 1998 confirmed the elevated levels in outfalls 1, 2, and 3.

Additional sediment sampling of the three outfalls and manholes/catch basins on each outfall system conducted in April 1998 indicated levels of mercury above the SEL in outfalls 2 and 3 and 19 of 72 manholes/catch basins and levels above the LEL in all three outfalls and 39 of 72 manholes/catch basins.

Based on these findings, sediment in the three outfalls and 118 manholes and catch basins was removed in June 1998 for proper disposal.

Post-removal sampling of the three outfalls and manholes/catch basins on each outfall system was conducted in October 1998. Levels of mercury above the SEL were detected in outfalls 1 and 2 and 7 of 46 manholes/catch basins and levels above the LEL were detected in all three outfalls and 29 of 46 manholes/catch basins.

In November 1998, flushing and additional sediment removal was conducted for the three storm water outfall systems.

2.0 BACKGROUND

2.1 Facility Description

NAWCADTRN, a former testing facility for military aircraft engine performance, is located on approximately 66 acres in Ewing Township, Mercer County, New Jersey (see Figure 1). The site is five (5) miles northwest of Trenton, NJ, thirty (30) miles northeast of Philadelphia, PA, and two (2) miles north-northeast of the Delaware River.

Trenton-Mercer County Airport borders most of the northern portion of the NAWCADTRN property. A railroad borders the site on the east and separates the NAWCADTRN Administration Building from the remainder of the facility. The southern boundary of the NAWCADTRN property is Parkway Avenue. Several commercial properties are located across Parkway Avenue. East of the railroad is a manufacturing plant that produces automobile components. East of the manufacturing site is Gold Run Creek and associated ponds.

Residential, agricultural, commercial, and light-industrial areas are located further south and southwest of NAWCADTRN. A large portion of the land between the Delaware River and NAWCADTRN is owned by the State of New Jersey, including the State Police Headquarters and the Marie S. Katzenbach State School for the Deaf.

Three large buildings comprised the NAWCADTRN experimental engine laboratory: The Blower Wing (B-40), the Test Wing (B-41), and the Exhauster Wing (B-42). The Test Wing was composed of ten (10) engine test cells and control rooms that provided experimental atmospheric conditions for engine performance testing. The cells provided high altitude, low altitude, and sea-level simulations. Helicopter transmission testing was also conducted in the Test Wing. The Blower Wing generated simulated atmospheric conditions and the Exhauster Wing received the engine exhaust gas and simulated altitude conditions.

The NAWCADTRN testing complex was fully serviced by an on-site industrial wastewater treatment plant, a high-capacity water cooling tower, a paint shop, a sheet metal shop, a machine shop, a woodworking shop, fuel and lubrication laboratories, a general chemistry laboratory, and various engineering and administrative offices. A 600 foot on-site potable water well was sealed in October 1993; the facility is now served by Trenton Water Works. Industrial wastewater from the site operations was diverted through a central piping system to a 52-foot-deep gravity basin, known as the Barometric Well. The Barometric Well is located between the Test and Exhauster Wings (see Figure 2). Floor drains existed in most NAWCADTRN buildings and shops. The drains led to the Barometric Well which served as a collection and holding area for various types of industrial discharges generated on site. The industrial wastewater from the Barometric Well was diverted to the on-site industrial wastewater treatment plant and then reused as cooling water and discharged to the sanitary sewer. Sanitary wastewater generated at the facility goes directly to the municipal sewer. In 1995, a groundwater treatment facility was installed to pump and treat

groundwater contamination at the southwest corner of the NAWCADTRN property. In the summer of 1995, a sump pit was installed to eliminate groundwater infiltration into the West-end Drainage Ditch. The groundwater from this sump pit was pumped to the Barometric Well. In early 1998, the Barometric well was decommissioned and the groundwater from the sump pit was pumped directly to the on-site groundwater treatment facility.

As part of the Base Realignment and Closure Act of 1993, the NAWCADTRN was designated for closure in 1998.

2.2 Storm Water System

The storm water drainage system from NAWCADTRN forms the headwaters of Gold Run Creek (Figure 3). Various sub-basins drain to the headwater area located south of Parkway Avenue on General Motors/Delphi property.

At NAWCADTRN, 135 manholes and catch basins on parcels A and B flow directly to four separate outfalls along the north side of Parkway Ave. at the southern boundary of the base (Figure 4). The outfalls are below grade poured concrete boxes. Outfalls 2, 3, and 4 are covered while outfall 1 (the west ditch) is open. The vaults are lower than the outlet pipe to prevent sediment from leaving the facility. Each outfall has a shutoff valve to prevent storm water from leaving the facility in an emergency situation. Sediment samples are scooped from the bottom of manholes, catch basins, and outfalls. Most of the storm water pipe is reinforced concrete pipe (RCP). The Navy storm sewer pipe starts at the end of the west ditch as a 36" RCP. By the time it reaches the railroad tracks it is a 54" RCP. At the tracks it becomes a 44" by 72" corrugated metal pipe arch. The north side pipe joins the ancestral west branch culvert under the south side of Parkway Ave. before flowing to Gold Run.

The ancestral west branch of Gold Run starts at Spring 1 in the wooded area located west of NAWCADTRN. The stream that formerly flowed east has been reconstructed into a culvert under the south side of Parkway Ave. Storm sewer inlets in the residential area along Decou Ave., Michelle Ct., West Upper Ferry Rd., and Parkway Ave. are collected into this "ancestral west branch" pipe under the south side of Parkway Ave. The culvert starts as a 24" clay pipe and gets progressively larger (30" and 42" reinforced concrete pipe (RCP)) before the railroad bridge. From the railroad eastward it is a 3' by 4' concrete flume. The flume has a french drain below it, possibly to lower the water table in the vicinity of the bridge. This Ewing Township storm sewer joins the Navy north side pipe near the headwall on Delphi property.

The ancestral east branch of Gold Run starts as a farm pond just south of the Ewing Cemetery. The drainage sub-basin encompasses portions of the cemetery, the wooded former farmhouse area and the soccer fields. It is presumed that the catch basins in the credit union and shopping center parking lots are connected to the east branch culvert before it flows under Parkway Ave.

Spring #2 located east of NAWCADTRN discharges to a catch basin that runs into the east branch of Gold Run. The east branch pipe is 24" corrugated metal pipe (CMP).

Historically, many pressure reading instruments (manometers/barometers) which contained mercury were used throughout the test area of the facility (Buildings 40, 41, and 42). Historical maps show that building 21 was once used for parts cleaning, electrical and instrumentation calibration and repair and that floor drains in the building discharged to the storm system. As part of the barometric well decommissioning, floor drains in Buildings 21, 40, 41, and 42 were pressure flushed and sealed with grout in October 1997. Section 4 of this report provides a summary of mercury testing and cleanup activities conducted in Buildings 21, 40, 41, and 42.

2.3 Physical Characteristics

A summary of the physical characteristics of the facility is provided in the following sections. More detailed information is provided in the RI report which is available for review as part of the Administrative Record.

Site Topography

The NAWCADTRN facility is located within a sub-unit of the Piedmont known as the Northern Triassic Lowland. The topographic relief of this sub-province is characterized by undulating ridges and nearly-level to gentle slopes. The elevation of the topographic surface at the NAWCADTRN site ranges from 176 feet above mean sea level in the northern portion of the property to 132 feet above mean sea level in the southeastern portion, along Parkway Avenue. The NAWCADTRN site is located at latitude 43°13' north and longitude 74°46' west.

Site Hydrology

There are no streams, creeks, or lakes located on the site. Three significant streams are located within the vicinity of the NAWCADTRN site: Gold Run Creek, the western branch of Shabakunk Creek, and Jacobs Creek, all of which drain into the Delaware and Raritan Canal and the Delaware River. The only local stream that receives runoff directly from NAWCADTRN is Gold Run, a shallow north-to-south flowing stream located south of Parkway Avenue and east of NAWCADTRN. An intermittent spring located to the west of the facility forms the ancestral west branch of Gold Run. This ancestral west branch was culverted under the south side of Parkway Ave. The inflow to the culvert is at the intersection of Parkway Ave. and Decou Ave. (Figure 3). The culvert carries flow under Parkway Ave. eastward about 2,800 ft. to an exit culvert located east of the facility. It is believed that west branch culvert gains flow from groundwater along its length under Parkway Ave. Additional studies will be conducted to confirm if groundwater is infiltrating the storm water system. The Hydrogeologic Framework, Water Levels, and Trichloroethylene Contamination Report prepared by the U.S. Geological Survey (November 3, 1997) provides additional information concerning the site hydrology.

Site Overburden Geology

The unconsolidated overburden at and around NAWCADTRN consists of natural alluvial deposits and in-situ weathered rock. Much of the shallow subsurface in residential and industrial areas consists of material that has been mixed by excavation, filling, construction, and other disturbances such that the original shallow stratigraphy has been destroyed. The natural alluvial deposits are a discontinuous Quaternary unit deposited by interglacial meltwater streams. This unit, the Pennsauken Formation, is composed mainly of silt with intermixed clay, sand, and gravel. The alluvium ranges in color from orange-brown to dark brown. These dense meltwater deposits exhibit poor vertical permeability and influence local surface water runoff and infiltration.

The overburden is thickest, approximately 22 feet, on the northwest end of the NAWCADTRN site, near the Cooling Towers (Figure 2) and decreases to six (6) feet in the southern portion of the site.

3.0 MERCURY IN STORM SEWER SEDIMENT

3.1 Supplemental Ecological Investigation

In July 1994, the Navy issued a Final Draft Remedial Investigation (RI) Report. Two sampling rounds were taken from outfalls 1 through 4 in 1992 during the RI (Table 1). The ecological risk assessment part of this report indicated that inorganic constituents (aluminum, chromium, lead, mercury, and zinc) were detected in the sediment and/or surface waters of the Gold Run system at levels which could potentially impact benthic and water column species. However, adequate background data was not available to evaluate NAWCADTRN contributions of these constituents of potential concern (COPC).

In December 1997, a Supplemental Ecological Investigation was conducted to determine the NAWCADTRN contribution of COPC to Gold Run as compared to other potential inputs, characterize any change in the Navy's contribution of COPC since the previous sampling rounds (conducted during the RI), and determine whether potential impacts to Gold Run due to Navy sources warrant further action. These objectives were addressed by a focused sampling of the storm drainage systems that discharge into Gold Run. The sampling locations are summarized in Table 1 and shown on Figure 3.

Two surface water samples (GR-SW-01 and GR-SW-02) and sediment samples (GR-SD-01 and GR-SD-02) were taken from a wetland area located north of Parkway Avenue to characterize background input. Two surface water samples (SP2-SW-02 and SP2-SW-02) and sediment

samples (SP2-SD-01 and SP2-SD-02) were taken from the wetland area surrounding the spring (Spring 2) located directly west of Gold Run.

The western drainage area that is the tributary to Gold Run has a remnant headwater area located to the northeast corner of Parkway Avenue and Upper ferry Road. Two surface water samples (SP1-SW-02 and SP1-SW-02) and sediment samples (SP1-SD-01 and SP1-SD-02) were taken in the vicinity of a spring (Spring 1) located in this area to further characterize background conditions.

Four storm drains (OF-1, OF-2, OF-3, and OF-4) at NAWCADTRN were sampled for water and sediment characteristics. These drains flow into the sewer on the north side of Parkway Avenue. Five other Ewing Township storm drains (ST21, ST26, ST27, ST28, and ST29) located along Parkway Avenue were also sampled to determine the regional quality of the storm water and sediment. Sample ST21 was taken from the ancestral west branch of Gold Run. ST21, ST26, and ST27 were only sampled for water since the storm drain contained no sediment. ST28 and ST29 were sampled for sediment only since the storm drain contained no water.

Two historic sampling locations (SW/SD07 and SW/SD08) in a small pond on the Gold Run system indicated on Figure 3 were not sampled during the Supplemental Investigation.

The results of the supplemental investigation indicated elevated levels of mercury in the NAWCADTRN storm water outfalls. The sampling results for mercury from this investigation and their comparison the previous sampling rounds are provided in Table 1.

The Supplemental Ecological Investigation conclusions indicated that the constituents from the NAWCADTRN storm sewer system did differ significantly from the regional system in respect to potential for toxic effects to biota in the receiving waters with the exception of elevated levels of mercury found in outfalls 1, 2, and 3. Further investigation of the presence of mercury in the storm drains was necessary.

3.2 Storm Water Outfall Confirmation Sampling

On 16 March 1998, an additional round of sediment samples were collected from the NAWCADTRN storm water outfalls 1, 2, and 3 and analyzed for mercury to verify the presence of elevated levels identified during the Supplemental Ecological Investigation. The sampling results from this sampling round are provided in Table 2. The results indicated that all three outfalls contained sediment above the SEL and LEL.

3.3 Storm Water Outfall, Manhole, and Catch Basin Sediment Sampling (April 1998)

There are 135 manholes and catch basins that discharge to outfalls 1 through 4 (see Table 3). A manhole is a covered access port which is used for cleaning and maintenance of the storm sewer. A catch basin is covered by a grate and is used to collect storm water runoff.

In April 1998, sediment samples were collected from outfalls 1, 2, and 3 and 70 manholes/catch basins leading to the three outfalls. The samples were analyzed for mercury to evaluate whether there is a continuing source of mercury to the storm outfalls. The sampling locations are provided on Figure 4 and the results are provided in Table 3. Table 3 also indicates why other manholes/catch basins on the three outfall systems were not sampled. Overall results indicated levels of mercury above the SEL in outfalls 2 and 3 and 19 of 70 manholes/catch basins. Levels above the LEL were detected in all three outfalls and 38 of 70 manholes/catch basins. Sampling results ranged from non-detect to 2,230 mg/kg.

Sample OF-2 (outfall #2 located south of the parking lot west of the main entrance) indicated 381 mg/kg of mercury. Sample SD-50 (located upstream from outfall #2) contained a concentration of 2,230 mg/kg. Samples collected further upstream from SD-50 contained much lower concentrations of mercury. An elevated level of 27.6 mg/kg was detected in catch basin No. 57, located south and west of building 47, which discharges to outfall 1.

Historically, many pressure reading instruments (manometers/barometers) which contained mercury were used throughout the test area of the facility (Buildings 40, 41, and 42). A possible source of the elevated levels of mercury in samples SD-50 and outfall OF-2 is past activity conducted in Building 21. Historical maps show that building 21 was once used for parts cleaning, electrical and instrumentation calibration and repair and that floor drains in the building discharged to the storm system. As part of the barometric well decommissioning, floor drains in Buildings 21, 40, 41, and 42 were pressure flushed and sealed with grout in October 1997. Section 4 of this report provides a summary of mercury testing and cleanup activities conducted in Buildings 21, 40, 41, and 42.

3.4 Storm Water Outfall, Manhole, and Catch Basin Sediment Removal (June 1998)

In June 1998, storm sewer sediment removal was conducted to remove mercury contaminated sediment from the outfalls, manholes, and catch basins at the facility. Liquid and sediment from the three outfalls and 118 manholes/catch basins was removed by a vacuum truck. Table 4 provides the dates when each manhole/catch basin was cleaned. The sediment and water from each storm sewer outfall system (OF-1, OF-2, and OF-3) was placed into a separate 30 cubic yard decant-box for settling. One decant box was generated for each of outfall nos. 1 and 2 and two decant boxes were generated for outfall no. 3.

On July 8, 1998, upon settling, the water and sediment were analyzed for disposal purposes. The sediment samples were analyzed for Toxic Characteristic Leachate Procedure (TCLP) metals, TCLP base neutrals, TCLP volatile organics, total petroleum hydrocarbons (TPH), and Resource Conservation and Recovery Act (RCRA) characteristics. The water samples were analyzed for Target Analyte List (TAL) metals, Target Compound List (TCL) base neutrals, TCL volatile organics, and TPH. The water and sediment will be disposed of accordingly.

3.5 Storm Water Outfall, Manhole, and Catch Basin Sediment Sampling (August 1998)

Outfall system no. 2 was resampled on August 10, 1998 to determine if the sediment removal action was successful. Only 8 of 43 manholes/catch basins could be sampled due to a lack of sediment. Levels of mercury were not detected above the SEL. Levels of mercury above the LEL were detected in 2 of the 8 samples collected.

3.6 Storm Water Outfall, Manhole, and Catch Basin Sediment Sampling (October 1998)

In October 1998, sediment samples were collected from outfalls 1, 2, and 3 and 46 manholes and catch basins leading to the three outfalls. The samples were analyzed for mercury to evaluate the effectiveness of the sediment removal action conducted in June 1998. The sampling locations are provided on Figure 4 and the results are provided in Table 3. Overall results indicated levels of mercury above the SEL in outfalls 1 and 2 and 7 of 46 manholes/catch basins. Levels above the LEL were detected in all three outfalls and 28 of 46 manholes/ catch basins. Sampling results ranged from non-detect to 61.8 mg/kg.

3.4 Storm Water Outfall, Manhole, and Catch Basin Flushing and Sediment Removal (November 1998)

In November 1998, storm sewer outfall 1, 2, and 3 systems were flushed. Flush water and sediment were removed by a vacuum truck. The sediment and water from each storm sewer outfall system (OF-1, OF-2, and OF-3) was placed into a separate 30 cubic yard decant-box for settling. Upon settling, the water and sediment will be analyzed and disposed of properly.

4.0 MERCURY SAMPLING AND CLEANUP AT POTENTIAL SOURCE AREAS

4.1 Environmental Baseline Survey (EBS)

NAWCADTRN is scheduled for closure in December 1998 under the Base Realignment and Closure Act (BRAC) of 1993. An Environmental Baseline Survey (EBS) was conducted to support the Navy's compliance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 120 as amended by Public Law 102-46, the Community Environmental Response Facilitation Act (CERFA), and state and local real property

transfer disclosure notification regulations. The survey was conducted in two phases. Phase I was conducted from October to December 1993 and Phase II was performed in April and May 1995. A total of 74 areas of concern (AOCs) were identified during the EBS. The AOCs were evaluated to decide which areas required additional investigation sampling. An EBS Phase II Investigation of the sites was conducted from August 1996 to March 1997. Based on the results of this investigation, additional sampling activities were recommended for several AOCs. An EBS Phase II Supplemental Investigation was conducted from October to December 1997. The results of the EBS investigations can be found in the Environmental Baseline Survey (EBS) Phase II Report (EA, 1997) and the Environmental Baseline Survey (EBS) Phase II Supplemental Findings Report (EA, 1998).

The following Areas of Concern (AOCs) were evaluated as potential sources of mercury contamination (Figure 5).

AOC 16:

Area of Concern (AOC) No. 16 includes the control room in Building 40 where potential releases of mercury from mercury manometers reportedly occurred. A mercury vapor survey was performed at this AOC as part of the EBS Phase II field activities.

On January 28, 1997, a hand held mercury vapor meter was used to obtain 34 sample readings. The survey was divided into three primary areas of the control room: the Blue Room (16-Hg1 to 16-Hg13), the Green Room (16-Hg14 to 16-Hg29), and behind the controls (16-Hg30 to 16-Hg34). Sample locations were selected in areas where potentially high levels of mercury were likely to exist. Breathing zone and overhead readings were also measured in various locations. Screening locations where breathing zone measurements were collected include 16-Hg4, 16-Hg8, 16-Hg9, 16-Hg17, 16-Hg18, and 16-Hg25. Readings measured in overhead areas include 16-Hg7 and 16-Hg10. Sample locations and readings are provided in Figures 6, 7, and 8. A summary of the mercury screening results is provided as Table 5. The National Institute of Safety and Health (NIOSH) recommended exposure limit for mercury vapor is 0.05 mg/m^3 . This exposure limit is a 10-hour time weighted average that applies to a healthy worker population, takes into account economics and assumes respiratory protection will be utilized when the 0.05 mg/m^3 is exceeded. Mercury was not detected at concentrations exceeding the NIOSH limit in the Building 40 control room. No further action was recommended for this AOC.

AOC 21:

Area of Concern (AOC) No. 21 includes Building 41 drains, pits, sumps, and associated piping (Figure 5). Sampling was recommended for this AOC since an oily sheen was observed on the surface of the water in a pit located in the southeastern corner of the building. On January 30, 1997 a sediment sample was obtained from a sump located in the small engine test area (SETA) Pump Room. The sample was analyzed for base neutrals (B/Ns), total petroleum hydrocarbons

(TPH), and mercury. Mercury was detected at a concentration of 27.7 mg/kg. It was recommended that the sump be cleaned during facility closure activities.

AOC 26:

Area of Concern (AOC) No. 26 includes the Building 42 control room. During the Phase II Basewide EBS assessment, small beads of mercury were observed in the control room. A mercury vapor survey was conducted at this AOC as part of the EBS Phase II field activities.

On January 28, 1997, a hand held mercury vapor meter was used to obtain 29 sample readings. Sample locations were selected based on visual observations of mercury or in areas where potentially high concentrations of mercury were likely to exist. Sample locations and readings are provided in Figure 9. A summary of the mercury screening results is provided as Table 6. The National Institute of Safety and Health (NIOSH) recommended exposure limit for mercury vapor is 0.05 mg/m^3 . Mercury vapor concentrations exceeded the NIOSH limit at locations 26-Hg5, 26-Hg7, 26-Hg8, 26-Hg10, 26-Hg12, 26-Hg14, and 26-Hg18. Mercury concentrations at these locations ranged from 0.051 mg/m^3 at 26-Hg8 to 0.143 mg/m^3 at 26-Hg7. It was recommended that this area be cleaned with a mercury absorb and vacuumed with a High Efficiency Particulate Air (HEPA) unit.

AOC 26a:

Area of Concern (AOC) No. 26a includes the Building 41 control rooms. A mercury vapor survey was conducted at this AOC as part of the EBS Phase II field activities.

On January 28, 1997, a hand held mercury vapor meter was used to obtain 44 sample readings. The survey was divided into two control rooms: Control Room 1E (26a(1E)-Hg1 to 26a(1E)-Hg32) and Control Room 2E (26a(2E)-Hg1 to 26a(2E)-Hg12). Sample locations were selected in areas where potentially high levels of mercury were likely to exist. Breathing zone readings were also measured in various locations. Screening locations where breathing zone measurements were collected include 26a(1E)-Hg12, 26a(1E)-Hg15, 26a(1E)-Hg16, and 26a(1E)-Hg19. Sample locations and readings are provided in Figures 10 and 11. A summary of the mercury screening results is provided as Table 7. The National Institute of Safety and Health (NIOSH) recommended exposure limit for mercury vapor is 0.05 mg/m^3 . Mercury vapor concentrations exceeded the NIOSH limit in Control Room 1E at locations 26a(1E)-Hg5, 26a(1E)-Hg8, 26a(1E)-Hg10, 26a(1E)-Hg11, 26a(1E)-Hg25, and 26a(1E)-Hg29. Mercury concentrations at these locations ranged from 0.082 mg/m^3 at 26a(1E)-Hg10 to 0.963 mg/m^3 at 26a(1E)-Hg6. Mercury vapor concentrations exceeded the NIOSH limit in Control Room 2E at locations 26a(2E)-Hg5, 26a(2E)-Hg8, 26a(2E)-Hg10, and 26a(2E)-Hg12, 26a(1E)-Hg25, and 26a(1E)-Hg29. Mercury concentrations at these locations ranged from 0.064 mg/m^3 at 26a(2E)-Hg12 to 0.6 mg/m^3 at 26a(2E)-Hg11. Visible mercury was not observed in the two control rooms. It was recommended that this area be cleaned.

4.2 Reassessment of EBS Mercury Vapor Sampling

On May 9, 1997, a mercury vapor survey was performed by the National Naval Medical Center to validate the survey results obtained from Buildings 40, 41, and 42 during the EBS. A hand held mercury vapor meter was used to obtain 27 sample readings. Sample locations and readings are provided in Figures 12 through 16. With the exception of one location in Building 42, there was no mercury detected and there was no visible traces of the material. At the location in Building 42 where mercury was detected (AOC 26), a few small drops of mercury were observed.

In June 1997, the NAWCADTRN Occupational Safety and Health Department cleaned the entire control room where mercury was observed in Building 42 with a High Efficiency Particulate Air (HEPA) unit. Only a small amount ($< 1/2$ teaspoon) of mercury was recovered.

A re-evaluation of the Building 42 Control Room was conducted on October 28, 1997 to assess the effectiveness of the cleanup. A hand held mercury vapor meter was used to obtain 8 sample readings. The samples collected did not indicate any level above the NIOSH Recommended Exposure Limit of 0.05 mg/m^3 . Only one location registered any reading on the meter. Sample locations and readings are provided in Figure 17.

4.3 Mercury in Building 21

On January 12, 1998, mercury was discovered on the floor of Building 21 near the center of the building. The mercury was found under floor tiles that had been removed in preparation of repairing a water leak in the fire water line located under the floor. Small amounts of elemental mercury were observed on top of the concrete subfloor in two different areas about five feet apart where the floor tiles had been removed. All visible mercury was removed with a mercury vacuum. The total amount of mercury recovered was estimated to be less than one teaspoon. On January 13, 1998, the area was surveyed with a mercury vapor monitor. No mercury was detected. It is believed that this mercury was spilled years ago when mercury recovery operations and manometer calibration were performed in this area of Building 21.

4.4 Mercury Confirmation Sampling

In order to determine if Buildings 21, 40 and 41 are a source of mercury contamination, samples were collected in these buildings for mercury analysis. On July 6 and 7, 1998 dust/dirt and wipe samples were collected from the locations indicated in Table 8. A mercury vapor analyzer was used as a field screening tool to bias specific sampling locations towards areas of highest readings. Visible mercury was not observed at any sample location, however, mercury was detected in all samples sent to the laboratory with the exception of the wipe blank. Table 9 provides a summary of the mercury levels detected. Figures 18 through 21 indicate the location and result of samples taken.

5.0 CONCLUSIONS

On the basis of investigative results, elevated levels of mercury were determined to exist in the sediment at three outfalls and associated manholes/catch basins at NAWCADTRN.

Historical information concerning the use of mercury containing pressure reading instruments at the facility and sampling results indicate that Buildings 21, 40, 41, and 42 were potential sources of mercury in storm sewer sediment. As part of the Barometric Well decommissioning, the floor drains in these buildings were sealed in October 1997. The mercury in Buildings 21, 40, and 41 will be addressed separately and is not within the scope of this report.

Removal of sediment from the three outfalls (OF-1, OF-2, and OF-3) and 118 manholes and catch basins at the facility was conducted in June 1998. Post-remediation sediment sampling was attempted, in August 1998, but was unsuccessful due to a lack of sediment in most outfalls manholes, and catch basins.

Post-remediation samples, taken in October, indicated that the outfalls and associated manholes/catch basins still contained sediment with elevated levels of mercury.

Flushing of the three storm water systems and removal of sediment from outfalls, manholes, and catch basins was conducted in November 1998.

Additional sampling of outfalls, manholes, and catch basins will be conducted until two consecutive results below the action/cleanup level (SEL 2.0 mg/kg) are obtained for each location. Additional flushing and cleaning of outfalls, manholes, and catch basins will be conducted in the future, as necessary, based on post-remediation sampling results. Future sampling and remedial actions conducted for mercury in storm water sediment at NAWCADTRN will be documented in separate reports issued as an addendum to this report.

6.0 COMMUNITY INVOLVEMENT

The Community Relations Plan (CRP) for NAWCADTRN (September 1995) establishes procedures to guide the flow of information from the Navy to federal, state, and local government officials, interested groups, and residents relative to environmental investigation and clean-up activities at NAWCADTRN. The CRP is intended to keep local government officials and residents informed of environmental activities conducted at the facility and provide opportunities for involvement in the investigation and clean-up process. The CRP as well as all other documents used to prepare this document are contained in the facility's Administrative Record, located in the Environmental Office at NAWCADTRN. A document repository has also been established at the Mercer County Library, 61 Scotch Road, Ewing, NJ to provide a place for public review of NAWCADTRN environmental documents.

7.0 REFERENCES

EA Engineering, Science, and Technology, Inc., April 3, 1998, Storm Drain Sediment Sampling Work Plan for Naval Air Warfare Center, Aircraft Division, Trenton, NJ (Letter from Ron Harwood, EA to Donna Gaffigan, NJDEP).

EA Engineering, Science, and Technology, Inc., April 1998, Draft Supplemental Ecological Report (SER), Naval Air Warfare Center, Aircraft Division, Trenton, NJ.

EA Engineering, Science, and Technology, Inc., March 19, 1998, Results for Sediment Samples Collected from Outfalls 1, 2, and 3 (OF-1, OF-2, and OF-3) on 16 March 1998 (Facsimile Message to Jeff Dale/Ed Boyle, Northern Division from Ron Harwood, EA).

EA Engineering, Science, and Technology, Inc., August 1997, Environmental Baseline Survey (EBS) Phase II Report for Parcel B, Naval Air Warfare Center, Aircraft Division, Trenton, NJ.

Foster Wheeler Environmental Corporation, July 31, 1998, Post-Confirmation Sampling Letter Report, Mercury Confirmation Sampling, Naval Air Warfare Center, Aircraft Division, Trenton, NJ (Letter from Arthur Holcomb, Foster Wheeler to Commanding Officer Northern Division).

Foster Wheeler Environmental Corporation, July 13, 1998, Post-Remediation Letter Report, Storm Sewer Catch Basin Sediment Cleaning, Naval Air Warfare Center, Aircraft Division, Trenton, NJ (Letter from Arthur Holcomb, Foster Wheeler to Commanding Officer Northern Division).

Foster Wheeler Environmental Corporation, July 6, 1998, Addendum to Work Plan for Mercury Confirmation Sampling, Naval Air Warfare Center, Aircraft Division, Trenton, NJ (Letter from Arthur Holcomb, Foster Wheeler to Commanding Officer Northern Division).

Foster Wheeler Environmental Corporation, June 23, 1998, Work Plan for Mercury Confirmation Sampling, Naval Air Warfare Center, Aircraft Division, Trenton, NJ (Letter from Arthur Holcomb, Foster Wheeler to Commanding Officer Northern Division).

Foster Wheeler Environmental Corporation, May 13, 1998, Work Plan for Storm Sewer Catch Basin Sediment Cleaning, Naval Air Warfare Center, Aircraft Division, Trenton, NJ (Letter from Arthur Holcomb, Foster Wheeler to Commanding Officer Northern Division).

IT Corporation, July 1994, Draft Remedial Investigation Report; Installation Restoration Program (6 vols.), Naval Air Warfare Center, Aircraft Division, Trenton, NJ.

National Naval Medical Center, November 14, 1997, Mercury Survey - Re-evaluation of Building 42 Control Room, Naval Air Warfare Center, Aircraft Division, Trenton, NJ.

National Naval Medical Center, May 16, 1997, Mercury Survey - Sampling Data, Naval Air Warfare Center, Aircraft Division, Trenton, NJ.

Naval Air Warfare Center, Aircraft Division, Trenton, June 4, 1998, NAWC Trenton Storm Sewer Evaluation and Repair Final Report (Letter from Ed Boyle, Northern Division to Donna Gaffigan, NJDEP).

New Jersey Department of Environmental Protection, October 24, 1997, Present Use of NJDEP Guidance for Sediment Quality Evaluations (October 1997 Update).

New Jersey Department of Environmental Protection, March 1991, Guidance for Sediment Quality Evaluations.

8.0 ACRONYMS

AOC - Area of Concern

BRAC - Base Realignment and Closure

CERCLA - Comprehensive Environmental Response, Compensation and Liability Act

CERFA - Community Environmental Response Facilitation Act

COPC - Constituents of Potential Concern

EBS - Environmental Baseline Survey

EPA - U.S. Environmental Protection Agency

HEPA - High Efficiency Particulate Air

IR - Installation Restoration

NAPC - Naval Air Propulsion Center

NAWCADTRN - Naval Air Warfare Center, Aircraft Division, Trenton

NIOSH - National Institute for Occupational Safety and Health

NJDEP - New Jersey Department of Environmental Protection

NOAA - National Oceanic and Atmospheric Administration

RCRA - Resource Conservation and Recovery Act

RI - Remedial Investigation

SARA - Superfund Amendments and Reauthorization Act

SER Supplemental Ecological Report

SETA - Small Engine Test Area

TAL - Target Analyte List

TCL - Target Compound List

TCLP - Toxic Characteristic Leachate Procedure

TPH - Total Petroleum Hydrocarbons

VOC - Volatile Organic Compound

Table 1
Supplemental Ecological Investigation
Sediment and Surface Water Results for Mercury

Sediment Results

Sample ID	Sample date	Result (mg/kg)
GR-SD-02	12/3/97	0.06 U
OF22-SD-01 (OF-1)	12/3/97	51.6
OF22-SD-01 (OF-1)	6/30/92	0.17
OF22-SD-01 (OF-1)	6/1/92	0.11 NJ
OF23-SD-01 (OF-2)	12/2/97	60.1
OF23-SD-01 (OF-2)	7/1/92	0.58
OF23-SD-01 (OF-2)	6/2/92	0.57 NJ
OF24-SD-01 (OF-3)	12/3/97	4.3
OF24-SD-01 (OF-3)	7/1/92	0.1 B
OF24-SD-01 (OF-3)	6/2/92	0.04 NJ
OF25-SD-01 (OF-4)	12/2/97	0.22 B
OF25-SD-01 (OF-4)	7/1/92	2.2
OF25-SD-01 (OF-4)	6/2/92	0.21 NJ
SD07	10/6/93	0.48
SD08	10/6/93	0.73
SP2-SD-01	12/1/97	0.12 B
SP2-SD-02	12/1/97	0.17 B
Lowest Effects Level (LEL)		0.2 mg/kg
Severe Effects Level (SEL)		2.0 mg/kg

U - COMPOUND ANALYZED FOR BUT NOT DETECTED

N - SPIKED SAMPLE RECOVERY IS NOT WITHIN CONTROL LIMITS

J - ESTIMATED VALUE

B - REPORTED VALUE IS LESS THAN CONTRACT REQUIRED DETECTION LIMIT BUT
GREATER THAN INSTRUMENT DETECTION LIMIT

Table 1 (continued)

Surface Water Results

Sample ID	Sample date	Result (dissolved mercury) (ug/l)
GR-SW-01	12/3/97	0.55 B
OF22-SW-01 (OF-1)	6/30/92	0.35
OF22-SW-01 (OF-1)	6/1/92	0.5
OF23-SW-01 (OF-2)	12/2/97	7.6
OF23-SW-01 (OF-2)	7/1/92	0.12 U
OF23-SW-01 (OF-2)	6/2/92	0.47
OF24-SW-01 (OF-3)	7/1/92	0.12 U
OF24-SW-01 (OF-3)	6/2/92	1.3
OF25-SW-01 (OF-4)	7/1/92	0.12 U
OF25-SW-01 (OF-4)	6/2/92	0.47
ST21-SW-01	12/2/97	0.1 U
ST21-SW-01	6/30/92	0.12 U
ST21-SW-01	6/1/92	0.5
ST26-SW-01	12/2/97	0.1 U
SW07	10/6/93	0.11 BJ
SW08	10/6/93	0.07 BJ
Aquatic Effects - Acute		2.1 ug/l (dissolved mercury)
Aquatic Effects - Chronic		0.012 ug/l (total mercury)
Human Health Effects (Non-Carcinogenic)		0.14 ug/l (dissolved mercury)

U - COMPOUND ANALYZED FOR BUT NOT DETECTED

J - ESTIMATED VALUE

B - ANALYTE WAS FOUND IN THE EQUIPMENT BLANK

Table 2
Confirmation Sampling (March 16, 1998)
Sediment Results for Mercury

Sediment Results

Sample ID	Result (mg/kg)
OF-1	8.1
OF-2	22.4
OF-3	2.5
OF-3 (DUP.)	1.9
Lowest Effects Level (LEL)	0.2
Severe Effects Level (SEL)	2.0

U - COMPOUND ANALYZED FOR BUT NOT DETECTED

N - SPIKED SAMPLE RECOVERY IS NOT WITHIN CONTROL LIMITS

J - ESTIMATED VALUE

STORM SEWER SYSTEM <<<*>>> MERCURY SAMPLING

		Feeds From	Exits To	IT	IT	EA	EA	EA	EA	EA
				June	July	December	March	April	August	October
				1992	1992	1997	1998	1998	1998	1998
Outfall	1	140	Storm Sewer - Parkway	0.11	0.17	51.60	8.10	1.40		3.30
CatchBasin	140	57 (Removed); 201; B#41	Outfall #1					0.24		** NS(1) **
ManHole	57	58; 59; Removed	140; Removed					27.60		Removed - Site 1 Excavation
ManHole	58	--; Removed	57; Removed					** ND **		Removed - Site 1 Excavation
CatchBasin	59	60; Removed	57; Removed					8.50		Removed - Site 1 Excavation
CatchBasin	60	61; Removed	59; Removed					7.20		Removed - Site 1 Excavation
CatchBasin	61	62; Removed	60; Removed					8.80		Removed - Site 1 Excavation
CatchBasin	62	63; Removed	61; Removed					5.20		Removed - Site 1 Excavation
CatchBasin	63	64; Removed	62; Removed					21.00		Removed - Site 1 Excavation
CatchBasin	64	65; Removed	63; Removed					8.60		Removed - Site 1 Excavation
ManHole	65	66; 67; 68; Removed	64; Removed					1.70		Removed - Site 1 Excavation
CatchBasin	66	--; Removed	65; Removed					** NS **		Removed - Site 1 Excavation
CatchBasin	67	--; Removed	65; Removed					0.25		Removed - Site 1 Excavation
CatchBasin	68	200; B#41	65; Now Deadheaded					** NS(1) **		** NS **
CatchBasin	200	--; B#42	68					5.10		** NS **
	201	46; FrenchDrain	140					** NS(2) **		** NS(3) **
ManHole	46	45; 47; 144; PP	201					** ND **		** NS(1) **
CatchBasin	45	44	46					0.35		0.96
CatchBasin	44	--	45					** ND **		0.93
CatchBasin	144	145	46					0.15		0.59
CatchBasin	145	--	144					0.39		** NS(1) **
CatchBasin	PP	OO	46					0.27		0.36
CatchBasin	OO	NN	PP					** NS(1) **		** NS(1) **
CatchBasin	NN	--	OO					3.80		** NS(1) **
ManHole	47	48; 49; MM	46					0.38		0.38
CatchBasin	48	--	47					6.60		0.38
CatchBasin	49	--	47					** NS(2) **		** NS(2) **
CatchBasin	MM	--	47					4.50		4.80
Outfall	2	55; Gutters	Storm Sewer - Parkway	0.57	0.58	60.10	22.40	381.00		5.40
ManHole	55	52	Outfall #2					** NS(1) **		** NS(1) **
ManHole	52	51; 54	55					** NS(1) **		61.80
CatchBasin	54	53; B#40	52					2.20		0.24
CatchBasin	53	--	54					2.20	0.35	0.89
ManHole	51	50; B#21	52					** NS(1) **		** NS(1) **
ManHole	50	43; B#21	51					2,230.00		16.50
ManHole	43	36; B#21	50					3.60	0.48	0.19
ManHole	36	37; 41; 38; 35	43					1.30		0.31
ManHole	41	42; B#42	36					** NS(2) **		** NS(1) **
ManHole	42	--	41					** NS(2) **		** NS(1) **
CatchBasin	37	--	36					** NS(3) **		** NS(3) **
CatchBasin	38	39; 40	36					1.10		0.33
CatchBasin	39	--	38					6.60	** ND **	0.42
CatchBasin	40	40A; 40C	38					0.22		0.53
CatchBasin	40A	40B	40					** NS(4) **		** NS(1) **
CatchBasin	40B	--	40A					0.69		** NS(1) **
CatchBasin	40C	40D	40					1.00		** NS **
CatchBasin	40D	40E	40C					0.93		3.90
CatchBasin	40E	40F; 40G	40D					2.30		3.60
CatchBasin	40F	--	40E					** NS(4) **		1.20
CatchBasin	40G	--	40E					** ND **		** NS(1) **
ManHole	35	33; 34; 30	36					0.20	** ND **	0.12
CatchBasin	34	--	35					** ND **		** ND **
CatchBasin	33	32	35					** ND **	** ND **	0.70
CatchBasin	32	--	33					** ND **		1.00
ManHole	30	28; 29; B#22; 131	35					** NS(2) **	0.12	** ND **
CatchBasin	29	--	30					0.21		** ND **
ManHole	131	132; 130	30					** NS **		** NS **
ManHole	130	31	131					** NS **		** NS(3) **
ManHole	31	--	130					** NS(2) **		** ND **
CatchBasin	132	133	131					** NS **		** NS **
CatchBasin	133	136	132					4.30	** ND **	0.26
CatchBasin	136	--	133					** NS(6) **	** ND **	0.78
CatchBasin	28	24	30					** ND **		0.44
ManHole	24	23; 25; 27	28					0.15		** NS(1) **
CatchBasin	25	--	24					0.69		** NS(1) **
CatchBasin	26	--	27					0.17		** NS(1) **
CatchBasin	27	26; B#28	24					1.30		** NS(1) **
ManHole	23	22; B#28	24					** NS **		** NS(5) **
ManHole	22	21; S-7; S-8	23					** NS(5) **		** NS(5) **
ManHole	21	20; B#38; S-8	22					** NS(5) **		** NS(5) **
ManHole	20	19; B#30	21					** NS(5) **		** NS(5) **
ManHole	19	S-8	20					** NS(5) **		** NS(5) **

Table 3

Outfall	3	71; 72 [AKA 70]	Storm Sewer - Parkway	0.04	0.10	4.30	2.50	5.10	0.25
ManHole	71	73	Outfall #3					** NS(1) **	** NS(1) **
ManHole	72	73	Outfall #3					** ND **	** ND **
ManHole	73	81	71; 72					** NS(1) **	** NS(1) **
ManHole	81	80; 82	73					** NS(1) **	** NS(1) **
CatchBasin	80	79	81					1.10	0.98
CatchBasin	79	78	80					2.90	6.10
CatchBasin	78	77	79					** NS(1) **	** NS(1) **
CatchBasin	77	--	78					** NS(4) **	** NS(1) **
ManHole	82	83	81					** NS(5) **	** NS(5) **
ManHole	83	86; 85; 135	82					** NS(5) **	** NS(5) **
ManHole	85	LoadingDock	83					** NS **	** NS **
CatchBasin	86	87; 88	83					** ND **	** NS **
CatchBasin	87	--	86					** NS(1) **	** NS(1) **
CatchBasin	88	--	86					** NS(1) **	** NS(1) **
ManHole	135	134	83					** NS(2) **	** NS(2) **
ManHole	134	89	135					** NS(6) **	** NS(6) **
ManHole	89	18; B#27	134					** NS(5) **	** NS(5) **
ManHole	18	18; 17; B#34; B#78; B#54; 170	89					** NS(1) **	** NS(1) **
CatchBasin	170	171; 172	18					** ND **	0.12
CatchBasin	171	--	170					** ND **	** ND **
CatchBasin	172	173	170					** ND **	** ND **
CatchBasin	173	5	172					0.12	** NS(1) **
ManHole	5	174; 175	173					** NS(1) **	** NS(1) **
CatchBasin	175	178A	5					** NS(6) **	** NS(6) **
CatchBasin	178A	4	175					** NS(4) **	** NS(4) **
ManHole	4	4A	178A					** NS(6) **	** NS(6) **
ManHole	4A	6A	4					** NS(1) **	** NS(1) **
	6A	3	4A					** NS(1) **	** NS(1) **
ManHole	3	--	6A					** NS(1) **	** NS(1) **
CatchBasin	174	178	5					0.12	3.10
CatchBasin	176	178	174					** ND **	** ND **
CatchBasin	178	179	176					** ND **	** ND **
CatchBasin	179	180	178					** ND **	** ND **
CatchBasin	180	6	179					** NS(6) **	0.64
CBasin&MHle	6	--; 180??; 183??	183 or 180					** NS(6) **	** NS(1) **
ManHole	17	--	18					** ND **	0.78
ManHole	16	15	18					** ND **	** NS(1) **
ManHole	15	14	16					** NS(3) **	** NS(3) **
CatchBasin	14	13	15					** ND **	** NS(1) **
CatchBasin	13	11	14					** NS(2) **	** NS(1) **
CatchBasin	12A	--	13					** ND **	** NS(1) **
CatchBasin	12	187	13					0.24	** ND **
CatchBasin	187	--	12A					** ND **	** ND **
CatchBasin	11	9; 10	13					** ND **	** ND **
CatchBasin	10	--	11					** ND **	** NS(1) **
CatchBasin	9	8	11					** NS(1) **	** NS(1) **
CBasin&MHle	8	185	9					** NS(1) **	** NS(1) **
CatchBasin	185	7	8					0.10	** NS(1) **
CBasin&MHle	7	184; B#34	185					0.36	** NS(1) **
CatchBasin	184	183	7					** ND **	** ND **
CatchBasin	183	--; 6??	184					** ND **	0.94
Outfall	4	97	Storm Sewer - Parkway	0.21	2.20	0.22		** NS **	** NS **
ManHole	97	96; B#24	Outfall #4					** NS **	** NS **
ManHole	96	94; 98; B#24	97					** NS **	** NS **
ManHole	94	93; 95	96					** NS **	** NS **
CatchBasin	95	--	94					** NS **	** NS **
CatchBasin	93	--	94					** NS **	** NS **
ManHole	98	99; 100; B#25	96					** NS **	** NS **
CatchBasin	99	--	98					** NS **	** NS **
CatchBasin	100	101; 107	98					** NS **	** NS **
CatchBasin	101	102; ?	100					** NS **	** NS **
CatchBasin	102	103; 105	101					** NS **	** NS **
CatchBasin	105	--	102					** NS **	** NS **
CatchBasin	103	104	102					** NS **	** NS **
CatchBasin	104	--	103					** NS **	** NS **
CatchBasin	107	106; 108	100					** NS **	** NS **
CatchBasin	108	--	107					** NS **	** NS **
ManHole	106	--; Swale	107					** NS **	** NS **
<p>***>>> Note (1): No sediment found.</p> <p>***>>> Note (2): Manhole/catchbasin is inaccessible.</p> <p>***>>> Note (3): Not able to find at the specified location.</p> <p>***>>> Note (4): Cannot sample - sealed or can't open lid.</p> <p>***>>> Note (5): Not sampled - basin is over 15 feet deep.</p> <p>***>>> Note (6): Other:</p>									
		# 136: Full of water.						# 180: Inactive - filled with gravel.	
		# 6: Drain is collapsed and covered with drums.						# 175: Drain collapsed and filled with stone & concrete.	
		# 4: Paved over.						# 134: Roof drain.	

Table 3

**SUMMARY OF ACTIVITY FOR OUTFALL #1
N.A.W.C. - TRENTON**

M.H. - manhole
C.B. - catch basin

TABLE 4

SUMMARY OF ACTIVITY FOR OUTFALL #2
N.A.W.C. - TRENTON

ID #	M.H.	C.B.	DATE OF COMPLETION	COMMENTS
23	X		6/16/98	
24	X		6/16/98	
25		X	6/16/98	
26		X	6/16/98	
27		X	6/16/98	
28		X	6/16/98	
29		X	6/16/98	
30	X		6/16/98	
31	X		6/16/98	
32		X	6/16/98	
33		X	6/16/98	
34		X	6/16/98	
35	X		6/16/98	
40B		X	6/16/98	
40D		X	6/16/98	
40E		X	6/16/98	
40F		X	6/16/98	
40G		X	6/16/98	
130	-X		6/16/98	
36	- X		6/17/98	
38		X	6/17/98	
39		X	6/17/98	
40		X	6/17/98	
40A		X	6/17/98	
40C		X	6/17/98	
41	X		6/17/98	
42	X		6/17/98	
43	X		6/17/98	
50	X		6/17/98	
51	X		6/17/98	
52	X		6/17/98	
53		X	6/17/98	
54		X	6/17/98	
55	X		6/17/98	
OUTFALL # 2	NA	NA	6/17/98	
132	NA	NA	6/25/98	SUMP INSIDE BLDG. # 22
19	NA	NA		
20	NA	NA		
21	NA	NA		
22	NA	NA		
37	NA	NA		Not found
133	NA	NA		Not done - cleaned previously by Navy
136	NA	NA		Not done - cleaned previously by Navy

TABLE 4

SUMMARY OF ACTIVITY FOR OUTFALL #3
N.A.W.C. - TRENTON

ID#	M.H.	C.B.	DATE OF COMPLETION	COMMENTS
1	X		6/8/98	
2	X		6/8/98	
3	X		6/8/98	
4	X		6/8/98	
4A	X		6/8/98	
179		X	6/8/98	
180		X	6/8/98	
181		X	6/8/98	
5	X		6/9/98	
6	X		6/9/98	
7	X		6/9/98	
8	X		6/9/98	
9	X		6/9/98	
16	X		6/9/98	
175	X		6/9/98	
177	X		6/9/98	Possibly identified as 178A by EA during their sampling
10		X	6/9/98	
10A		X	6/9/98	At front of pesticide rinse rack
11		X	6/9/98	
12		X	6/9/98	
12A		X	6/9/98	North of building # 38 in grassy area
13		X	6/9/98	
14		X	6/9/98	
17		X	6/9/98	
170		X	6/9/98	
171		X	6/9/98	
172		X	6/9/98	
173		X	6/9/98	
174		X	6/9/98	
176		X	6/9/98	
178		X	6/9/98	
183		X	6/9/98	
184		X	6/9/98	
185		X	6/9/98	
187		X	6/9/98	
18	X		6/10/98	
89	X		6/10/98	Water level could not be brought down in manhole
135	X		6/10/98	
77		X	6/10/98	
78		X	6/10/98	
71	X		6/11/98	
72	X		6/11/98	
81	X		6/11/98	
84	X		6/11/98	
85	X		6/11/98	
69		X	6/11/98	
74		X	6/11/98	
75		X	6/11/98	

TABLE 4

SUMMARY OF ACTIVITY FOR OUTFALL #3
N.A.W.C. - TRENTON

ID#	M.H.	C.B.	DATE OF COMPLETION	COMMENTS
76		X	6/11/98	
79		X	6/11/98	
80		X	6/11/98	
86		X	6/11/98	
87		X	6/11/98	
88		X	6/11/98	
162		X	6/11/98	
163		X	6/11/98	
Outfall # 3	NA	NA	6/11/98	
134	X		6/24/98	Difficult due to rising water in manhole during vacuuming
15	?	?		Not located at mapped position

TABLE 5
MERCURY VAPOR FIELD SCREENING
AOC 16 - BUILDING 40 CONTROL ROOM(S)
EBS PHASE II REPORT, PARCEL B, NAWC TRENTON

BLUE ROOM

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	16-Hg1 1/28/97	16-Hg2 1/28/97	16-Hg3 1/28/97	16-Hg4 1/28/97	16-Hg5 1/28/97	16-Hg6 1/28/97	16-Hg7 1/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.001	0.000	0.002	0.002	0.000	0.000	0.004

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	16-Hg8 1/28/97	16-Hg9 1/28/97	16-Hg10 1/28/97	16-Hg11 1/28/97	16-Hg12 1/28/97	16-Hg13 1/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.004	0.002	0.006	0.002	0.001	0.002

GREEN ROOM

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	16-Hg14 1/28/97	16-Hg15 1/28/97	16-Hg16 1/28/97	16-Hg17 1/28/97	16-Hg18 1/28/97	16-Hg19 1/28/97	16-Hg20 1/28/97	16-Hg21 1/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.003	0.003	0.002	0.003	0.002	0.002	0.002	0.003

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	16-Hg22 1/28/97	16-Hg23 1/28/97	16-Hg24 1/28/97	16-Hg25 1/28/97	16-Hg26 1/28/97	16-Hg27 1/28/97	16-Hg28 1/28/97	16-Hg29 1/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.002	0.002	0.004	0.004	0.004	0.004	0.003	0.003

BEHIND CONTROLS

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	16-Hg30 1/28/97	16-Hg31 1/28/97	16-Hg32 1/28/97	16-Hg33 1/28/97	16-Hg34 1/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.004	0.004	0.006	0.008	0.005

(1) Time weighted average (TWA) concentration for up to a 10-hour work day during a 40-hour work week.

TABLE 6
MERCURY VAPOR FIELD SCREENING
AOC 26 - BUILDING 42 CONTROL ROOM
EBS PHASE II REPORT, PARCEL B, NAWC TRENTON

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	26-Hg1 01/28/97	26-Hg2 01/28/97	26-Hg3 01/28/97	26-Hg4 01/28/97	26-Hg5 01/28/97	26-Hg6 01/28/97	26-Hg7 01/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.004	0.005	0.004	0.045	0.086	0.004	0.143

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	26-Hg8 01/28/97	26-Hg9 01/28/97	26-Hg10 01/28/97	26-Hg11 01/28/97	26-Hg12 01/28/97	26-Hg13 01/28/97	26-Hg14 01/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.051	0.006	0.124	0.120	0.057	0.009	0.057

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	26-Hg15 01/28/97	26-Hg16 01/28/97	26-Hg17 01/28/97	26-Hg18 01/28/97	26-Hg19 01/28/97	26-Hg20 01/28/97	26-Hg21 01/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.016	0.020	0.020	0.054	0.042	0.004	0.006

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	26-Hg22 01/28/97	26-Hg23 01/28/97	26-Hg24 01/28/97	26-Hg25 01/28/97	26-Hg26 01/28/97	26-Hg27 01/28/97	26-Hg28 01/28/97	26-Hg29 01/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.003	0.003	0.026	0.001	0.004	0.003	0.005	0.009

(1) Time weighted average (TWA) concentration for up to a 10-hour work day during a 40-hour work week.

TABLE 7
MERCURY VAPOR FIELD SCREENING
AOC26a - BUILDING 41 CONTROL ROOMS
EBS PAHSE II REPORT, PARCEL B, NAWC TRENTON

CONTROL ROOM 1E

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	26a(1E)-Hg1 01/28/97	26a(1E)-Hg2 01/28/97	26a(1E)-Hg3 01/28/97	26a(1E)-Hg4 01/28/97	26a(1E)-Hg5 01/28/97	26a(1E)-Hg6 01/28/97	26a(1E)-Hg7 01/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.005	0.000	0.003	0.005	0.098	0.963	0.166

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	26a(1E)-Hg8 01/28/97	26a(1E)-Hg9 01/28/97	26a(1E)-Hg10 01/28/97	26a(1E)-Hg11 01/28/97	26a(1E)-Hg12 01/28/97	26a(1E)-Hg13 01/28/97	26a(1E)-Hg14 01/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.265	0.047	0.082	0.555	0.006	0.004	0.005

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	26a(1E)-Hg15 01/28/97	26a(1E)-Hg16 01/28/97	26a(1E)-Hg17 01/28/97	26a(1E)-Hg18 01/28/97	26a(1E)-Hg19 01/28/97	26a(1E)-Hg20 01/28/97	26a(1E)-Hg21 01/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.004	0.005	0.006	0.005	0.010	0.008	0.024

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	26a(1E)-Hg22 01/28/97	26a(1E)-Hg23 01/28/97	26a(1E)-Hg24 01/28/97	26a(1E)-Hg25 01/28/97	26a(1E)-Hg26 01/28/97	26a(1E)-Hg27 01/28/97	26a(1E)-Hg28 01/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.009	0.017	0.008	0.188	0.008	0.023	0.047

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	26a(1E)-Hg29 01/28/97	26a(1E)-Hg30 01/28/97	26a(1E)-Hg31 01/28/97	26a(1E)-Hg32 01/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.092	0.026	0.017	0.003

(1) Time weighted average (TWA) concentration for up to a 10-hour work day during a 40-hour work week.

TABLE 7 (continued)
 MERCURY VAPOR FIELD SCREENING
 AOC26a - BUILDING 41 CONTROL ROOMS
 EBS PAHSE II REPORT, PARCEL B, NAWC TRENTON

CONTROL ROOM 2E

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	26a(2E)-Hg1 01/28/97	26a(2E)-Hg2 01/28/97	26a(2E)-Hg3 01/28/97	26a(2E)-Hg4 01/28/97	26a(2E)-Hg5 01/28/97	26a(2E)-Hg6 01/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.007	0.010	0.012	0.033	0.440	0.030

Sample ID Sample Date	NIOSH Recommended Exposure Limit (1)	26a(2E)-Hg7 01/28/97	26a(2E)-Hg8 01/28/97	26a(2E)-Hg9 01/28/97	26a(2E)-Hg10 01/28/97	26a(2E)-Hg11 01/28/97	26a(2E)-Hg12 01/28/97
Analyte (mg/cubic meter) Mercury	0.05	0.028	0.180	0.045	0.109	0.600	0.064

(1) Time weighted average (TWA) concentration for up to a 10-hour work day during a 40-hour work week.

TABLE 8

LOCATION BUILDING 41	SAMPLE TYPE/QUANTITY	COMMENTS
FIRST FLOOR		
Glycol Pipe Trench	4 Dust Samples	Below metal floor cover
Locker Room	6 Wipe Samples	Tile Floor
Repair Shop	6 Wipe Samples	Tile Floor
Test Cell 8W	1 "Wet" Sediment	Below floor drain
Test Cell 5W	3 Dust Samples	Two in floor drain between 6W and 5W test cells; one in floor drain between 5W and 4W test cells
Control Room 6W	6 Wipe Samples	3/98 Site tour, Hg vapor detections along baseboard
Control Room 5W	5 Wipe Samples	3/98 Site tour, Hg vapor detections
1W/2W Elevator	4 Dust Samples	Concrete floor
2E First Floor Elevator	2 Dust Samples	Concrete floor
Doorway between 4W and 5W	2 Dust Samples	Below metal floor plate
SECOND FLOOR		
4W Control Room	6 Wipe Samples	Tile floor
3W Control Room	6 Wipe Samples	Tile floor
8W Control Room	6 Wipe Samples	Tile floor
SETA Data Room	4 Dust Samples	Below floor tiles
1E/2E Test Cell	6 Wipe Samples	3 in bottom of each cell
1W/2W Control Room	10 Wipe Samples	
1W Test Cell	6 Wipe Samples	
1E/2E Control Room	4 Wipe Samples	Metal floor plate
BUILDING 21		
Main Room (includes previous Hg spill area)	10 Dust Samples	Concrete floor under wood block
Floor Trench under Machines	4 Dust Samples	Under metal floor cover (one is "wet" sediment)
Floor Drain - Marine Barracks Area (former photo lab)	2 Sediment Samples	Inside floor drains
Model Shop Area	2 Dust Samples	Concrete floor under wood block
52 Shop	2 Wipes	Tile floor
BUILDING 40		
Personnel Elevator Pit	2 Dust Samples	Concrete floor

TABLE 9
ADDENDUM TO
POST-CONFIRMATION SAMPLING LETTER REPORT
RESULTS SUMMARY TABLE

Page 1 of 3

BUILDING 41

<u>LOCATION</u>	<u>SAMPLE ID</u>	<u>SAMPLE TYPE</u>	<u>MERCURY RESULT</u>
Test Cell 8W	NW41-TC8W-01	Sludge	30.8 mg/kg
Test Cell 3W	NW41-TC3W-01	Floor Dust	6.84 mg/kg
Control Room 5W	NW41-5WCR-01	Wipe	0.0046 mg/ft ²
Control Room 5W	NW41-5WCR-02	Wipe	0.0087 mg/ft ²
Control Room 5W	NW41-5WCR-03	Wipe	0.019 mg/ft ²
Control Room 5W	NW41-5WCR-04	Wipe	0.021 mg/ft ²
Control Room 5W	NW41-5WCR-05	Wipe	0.031 mg/ft ²
Control Room 6W	NW41-6WCR-01	Wipe	0.315 mg/ft ²
Control Room 6W	NW41-6WCR-02	Wipe	0.152 mg/ft ²
Control Room 6W	NW41-6WCR-03	Wipe	0.051 mg/ft ²
Control Room 6W	NW41-6WCR-04	Wipe	0.130 mg/ft ²
Control Room 6W	NW41-6WCR-05	Wipe	0.032 mg/ft ²
Control Room 6W	NW41-6WCR-06	Wipe	2.73 mg/ft ²
4W/5W Doorway	NW41-TC5W-01	Floor Dust	51.8 mg/kg
4W/5W Doorway	NW41-TC5W-02	Floor Dust	2.11 mg/kg
4W/5W Floor Drain	NW41-TC4W-01	Sludge	2.31 mg/kg
Test Cell 6W	NW41-TC6W-01	Floor Dust	189 mg/kg
Test Cell 6W	NW41-TC6W-02	Floor Dust	31.3 mg/kg
Locker Room	NW41-LR01	Wipe	0.011 mg/kg
Locker Room	NW41-LR02	Wipe	0.005 mg/kg
Locker Room	NW41-LR03	Wipe	0.065 mg/kg
Locker Room	NW41-LR04	Wipe	0.002 mg/kg
Locker Room	NW41-LR05	Wipe	0.001 mg/kg
Locker Room	NW41-LR06	Wipe	0.005 mg/kg
Repair Shop	NW41-RP01	Wipe	0.0033 mg/kg
Repair Shop	NW41-RP02	Wipe	0.0024 mg/kg
Repair Shop	NW41-RP03	Wipe	0.0019 mg/kg
Repair Shop	NW41-RP04	Wipe	0.036 mg/kg
Repair Shop	NW41-RP05	Wipe	0.0089 mg/kg
Repair Shop	NW41-RP06	Wipe	0.0045 mg/kg
Elevator 2E	NW41-2E01	Sludge	8.19 mg/kg
Elevator 2ESump	NW41-2E02	Sludge	1.92 mg/kg
Glycol Pipe Trench	NW41-GPT-01	Sludge	21.4 mg/kg
Glycol Pipe Trench	NW41-GPT-02	Sludge	0.001 mg/kg
Glycol Pipe Trench	NW41-GPT-03	Sludge	185 mg/kg
Glycol Pipe Trench	NW41-GPT-04	Sludge	19.6 mg/kg
Elevator 1W/2W	NW41-1W2W-01	Sludge	1880 mg/kg
Control Room 8W	NW41-8WCR-01	Wipe	0.003 mg/ft ²
Control Room 8W	NW41-8WCR-02	Wipe	0.007 mg/ft ²

TABLE 9
ADDENDUM TO
POST-CONFIRMATION SAMPLING LETTER REPORT
RESULTS SUMMARY TABLE

Page 2 of 3

<u>LOCATION</u>	<u>SAMPLE ID</u>	<u>SAMPLE TYPE</u>	<u>MERCURY RESULT</u>
Control Room 8W	NW41-8WCR-03	Wipe	0.006 mg/ft ²
Control Room 8W	NW41-8WCR-04	Wipe	0.007 mg/ft ²
Control Room 8W	NW41-8WCR-05	Wipe	0.003 mg/ft ²
Control Room 8W	NW41-8WCR-06	Wipe	0.002 mg/ft ²
Control Room 3W	NW41-3WCR-01	Wipe	0.275 mg/ft ²
Control Room 3W	NW41-3WCR-02	Wipe	0.019 mg/ft ²
Control Room 3W	NW41-3WCR-03	Wipe	0.016 mg/ft ²
Control Room 3W	NW41-3WCR-04	Wipe	0.013 mg/ft ²
Control Room 4W	NW41-4WCR-01	Wipe	0.553 mg/ft ²
Control Room 4W	NW41-4WCR-02	Wipe	0.080 mg/ft ²
Control Room 4W	NW41-4WCR-03	Wipe	0.478 mg/ft ²
Control Room 4W	NW41-4WCR-04	Wipe	0.054 mg/ft ²
Control Room 4W	NW41-4WCR-05	Wipe	0.179 mg/ft ²
Control Room 4W	NW41-4WCR-06	Wipe	0.025 mg/ft ²
SETA Data Room	NW41-SDR-01	Floor Dust	90.5 mg/kg
SETA Data Room	NW41-SDR-02	Floor Dust	69 mg/kg
SETA Data Room	NW41-SDR-03	Floor Dust	73.4 mg/kg
SETA Data Room	NW41-SDR-04	Floor Dust	72.4 mg/kg
Test Cell 1W	NW41-1WTC-01	Floor Dust	59.8 mg/kg
Test Cell 1W	NW41-1WTC-02	Floor Dust	32 mg/kg
1E Test Cell	NW41-1E01	Wipe	0.002 mg/ft ²
1E Test Cell	NW41-1E02	Wipe	0.002 mg/ft ²
1E Test Cell	NW41-1E03	Wipe	0.007 mg/ft ²
2E Test Cell	NW41-2E01	Wipe	0.004 mg/ft ²
2E Test Cell	NW41-2E02	Wipe	0.010 mg/ft ²
2E Test Cell	NW41-2E03	Wipe	0.004 mg/ft ²
2E Test Cell	NW41-2E04	Wipe	0.004 mg/ft ²
1E/2E Control Room	NW41-1E2E-01	Wipe	0.002 mg/ft ²
1E/2E Control Room	NW41-1E2E-02	Wipe	0.005 mg/ft ²
1E/2E Control Room	NW41-1E2E-03	Wipe	0.039 mg/ft ²
1E/2E Control Room	NW41-1E2E-04	Wipe	0.001 mg/ft ²
1W/2W Control Room	NW41-1W2W-01	Wipe	0.035 mg/ft ²
1W/2W Control Room	NW41-1W2W-02	Wipe	0.011 mg/ft ²
1W/2W Control Room	NW41-1W2W-03	Wipe	0.066 mg/ft ²
1W/2W Control Room	NW41-1W2W-04	Wipe	0.021 mg/ft ²
1W/2W Control Room	NW41-1W2W-05	Wipe	0.014 mg/ft ²
1W/2W Control Room	NW41-1W2W-06	Wipe	0.040 mg/ft ²
1W/2W Control Room	NW41-1W2W-07	Wipe	0.018 mg/ft ²
1W/2W Control Room	NW41-1W2W-08	Wipe	0.387 mg/ft ²
1W/2W Control Room	NW41-1W2W-09	Wipe	0.040 mg/ft ²
1W/2W Control Room	NW41-1W2W-10	Wipe	0.149 mg/ft ²

TABLE 9
ADDENDUM TO
POST-CONFIRMATION SAMPLING LETTER REPORT
RESULTS SUMMARY TABLE

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BUILDING 21

<u>LOCATION</u>	<u>SAMPLE ID</u>	<u>SAMPLE TYPE</u>	<u>MERCURY RESULT</u>
Main Room	NW21-MRFD-01	Floor Dust	111 mg/kg
Main Room	NW21-MRFD-02	Floor Dust	2.59 mg/kg
Main Room	NW21-MRFD-03	Floor Dust	0.267 mg/kg
Main Room	NW21-MRFD-04	Floor Dust	16.8 mg/kg
Main Room	NW21-MRFD-05	Floor Dust	198 mg/kg
Main Room	NW21-MRFD-06	Floor Dust	783 mg/kg
Main Room	NW21-MRFD-07	Floor Dust	13.5 mg/kg
Main Room	NW21-MRFD-08	Floor Dust	105 mg/kg
Main Room	NW21-MRFD-09	Floor Dust	7.82 mg/kg
Main Room	NW21-MRFD-10	Floor Dust	13.5 mg/kg
Model Shop	NW21-MSA-01	Floor Dust	10.3 mg/kg
Model Shop	NW21-MSA-02	Floor Dust	6.54 mg/kg
52 Shop	NW21-52S-01	Wipe	0.014 mg/ ft ²
52 Shop	NW21-52S-02	Wipe	0.012 mg/ ft ²
Machine Floor Trench 1	NW21-MFT1-01	Sludge	1.54 mg/kg
Machine Floor Trench 1	NW21-MFT1-02	Floor Dust	0.697 mg/kg
Machine Floor Trench 2	NW21-MFT2-01	Floor Dust	3.59 mg/kg
Machine Floor Trench 2	NW21-MFT2-02	Floor Dust	17.4 mg/kg
Machine Floor Trench 2	NW21-MFT2-03	Floor Dust	21.8 mg/kg
Machine Floor Trench 2	NW21-MFT2-04	Floor Dust	4.09 mg/kg

BUILDING 40

<u>LOCATION</u>	<u>SAMPLE ID</u>	<u>SAMPLE TYPE</u>	<u>MERCURY RESULT</u>
Elevator	NW40-PE01	Sludge	12 mg/kg
Elevator	NW40-PE02	Sludge	25.9 mg/kg

FIGURES

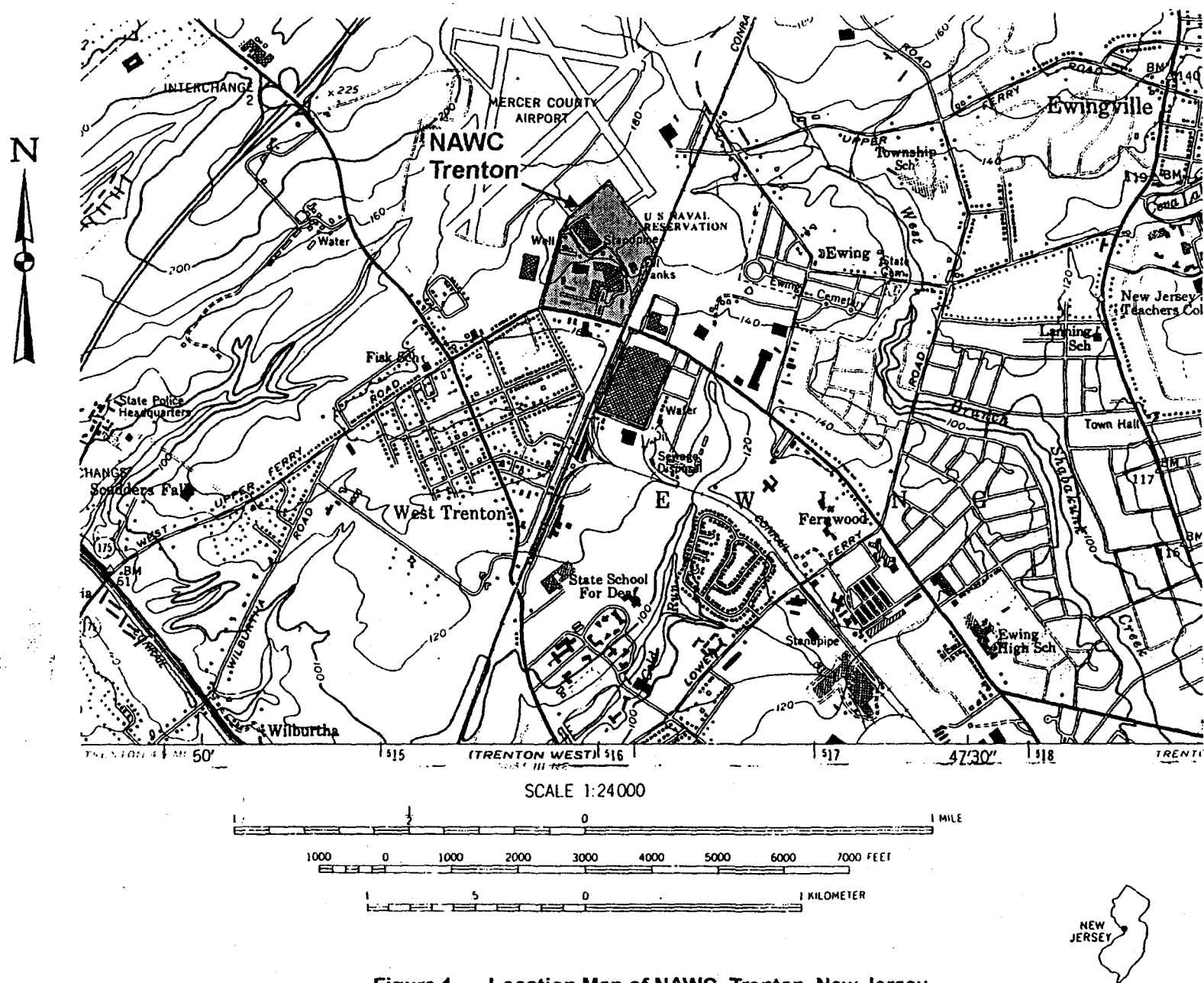
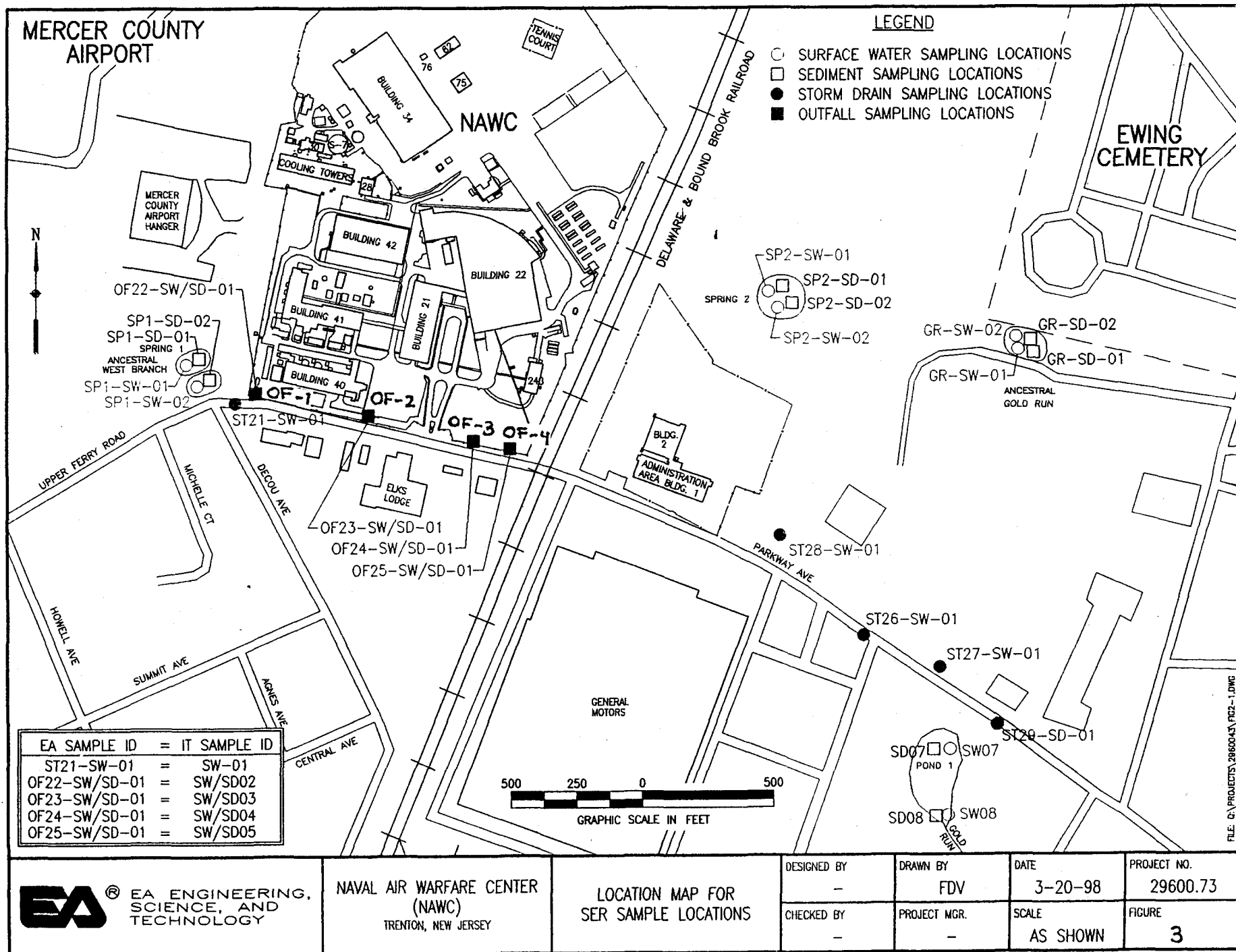
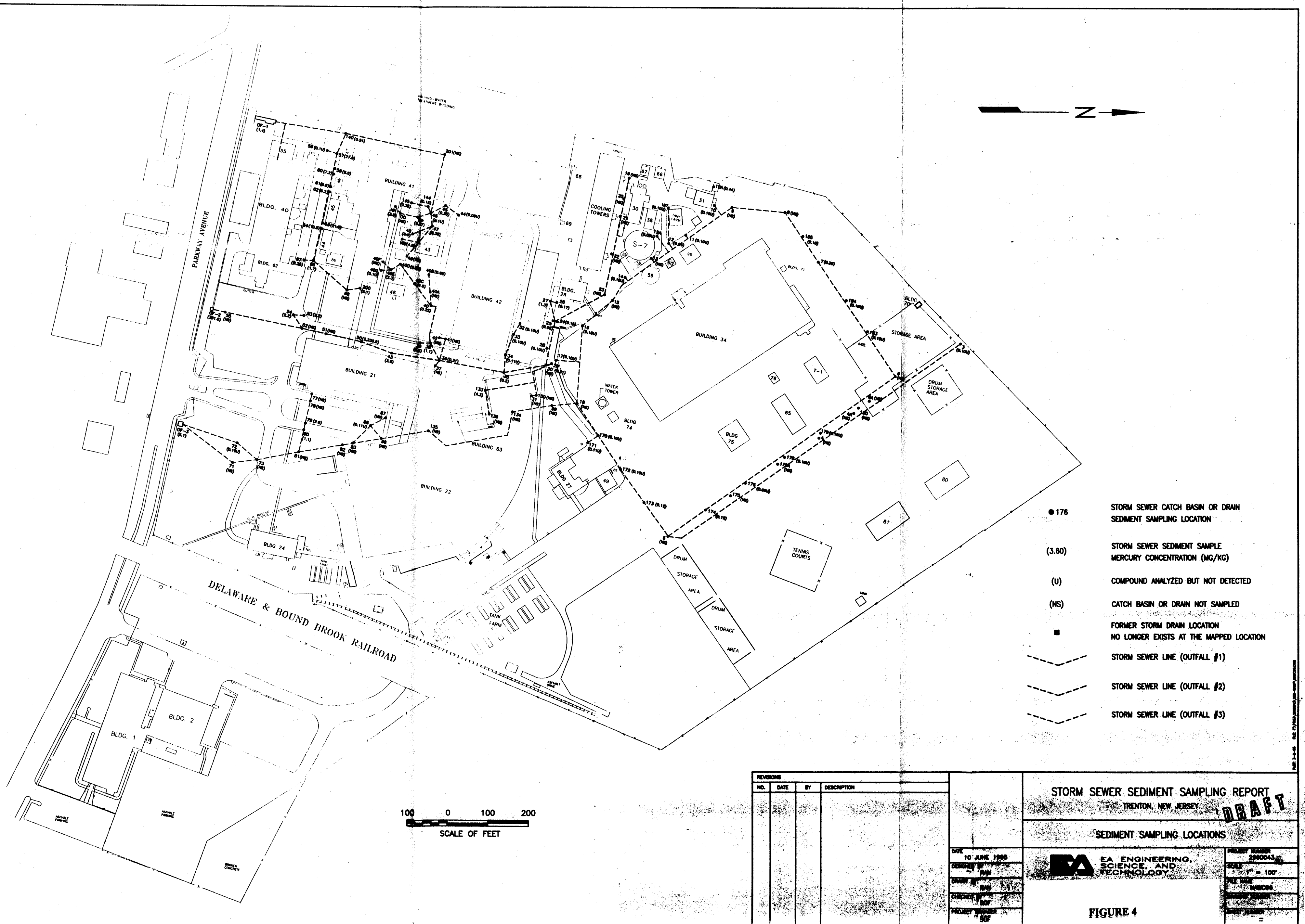
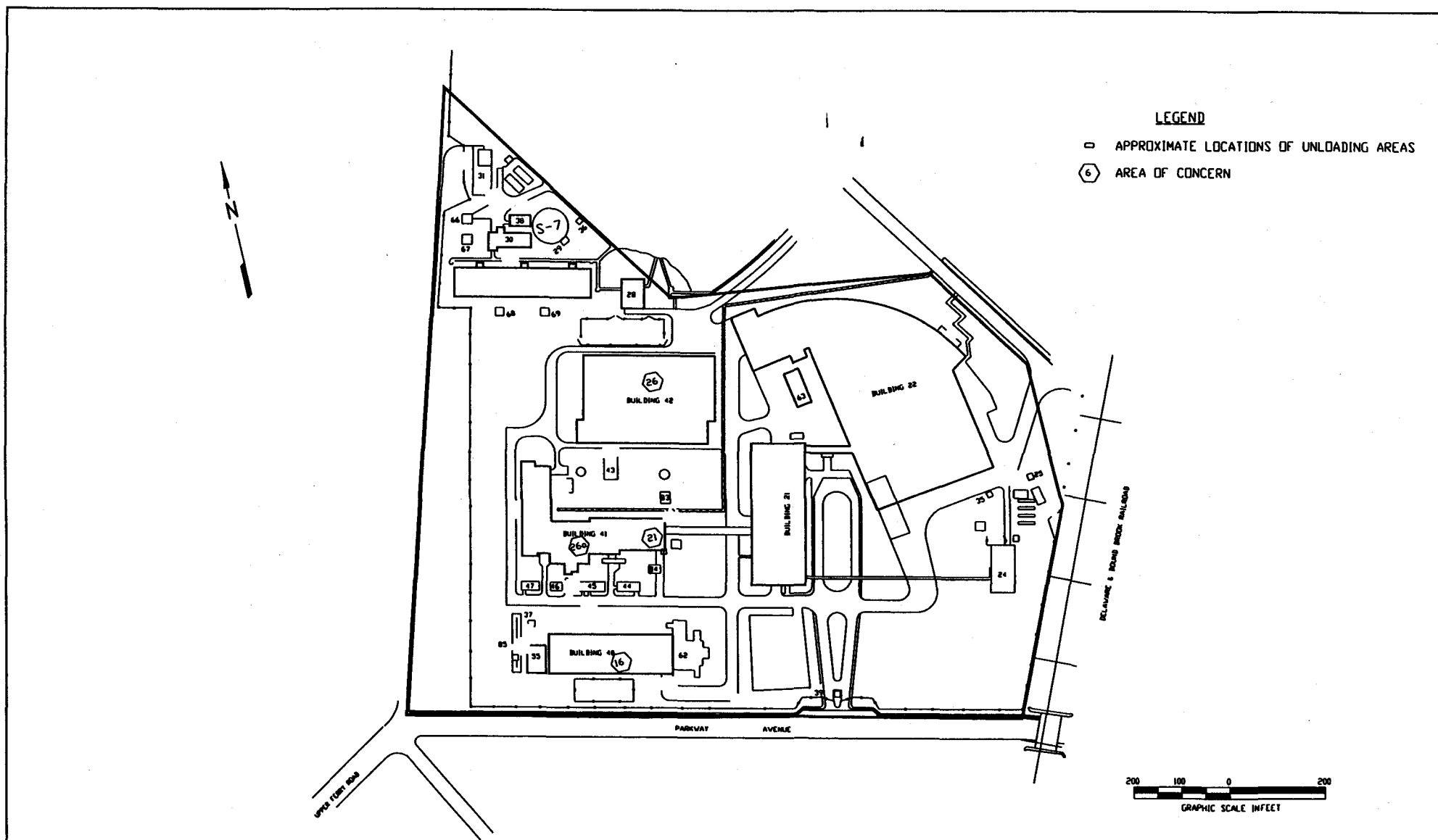


Figure 1 Location Map of NAWC, Trenton, New Jersey.



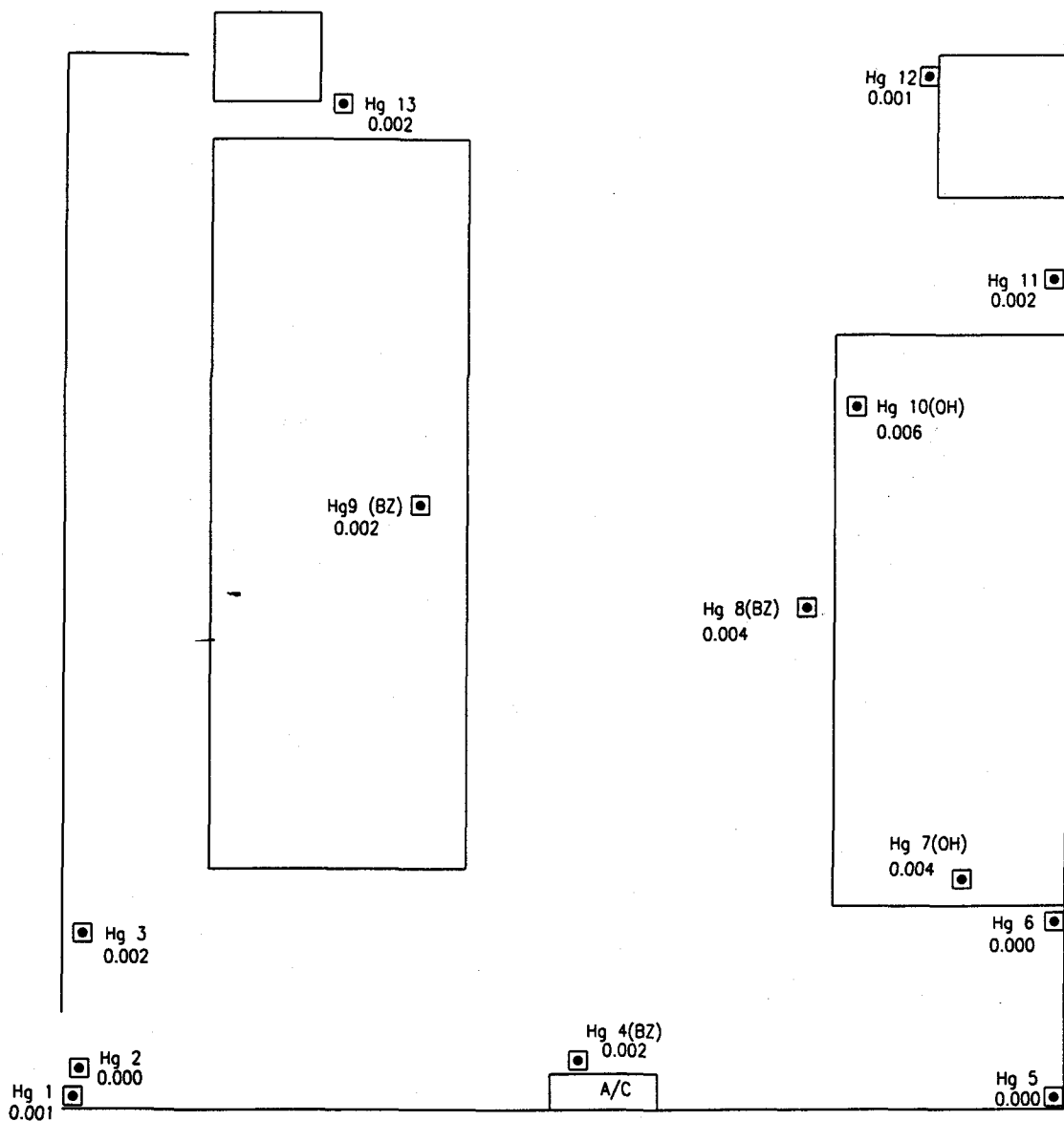




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AIRCRAFT DIVISION
TRENTON, NEW JERSEY

AREAS OF CONCERN
LOCATION MAP

FIGURE
5

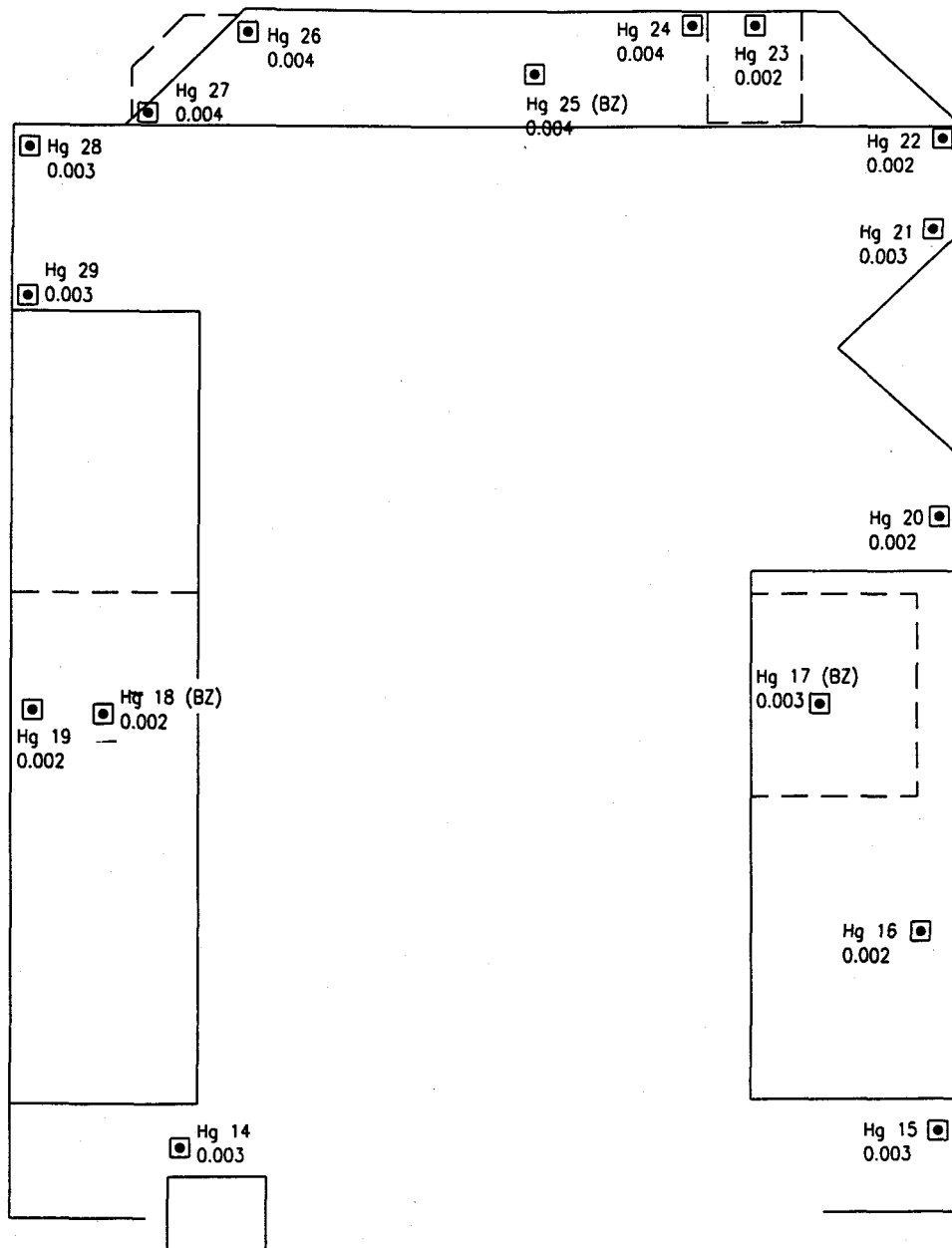


LEGEND

- SAMPLE LOCATION
- 0.004 READING IN mg/m^3 OF Hg
- BZ BREATHING ZONE READING
- OH OVERHEAD READING

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 TRENTON, NEW JERSEY

AREA OF CONCERN 16
 BUILDING 40 CONTROL ROOM
 (BLUE ROOM)
 MERCURY VAPOR SCREENING RESULTS



LEGEND

■ SAMPLE LOCATION

0.003 READING IN mg/m³ OF Hg

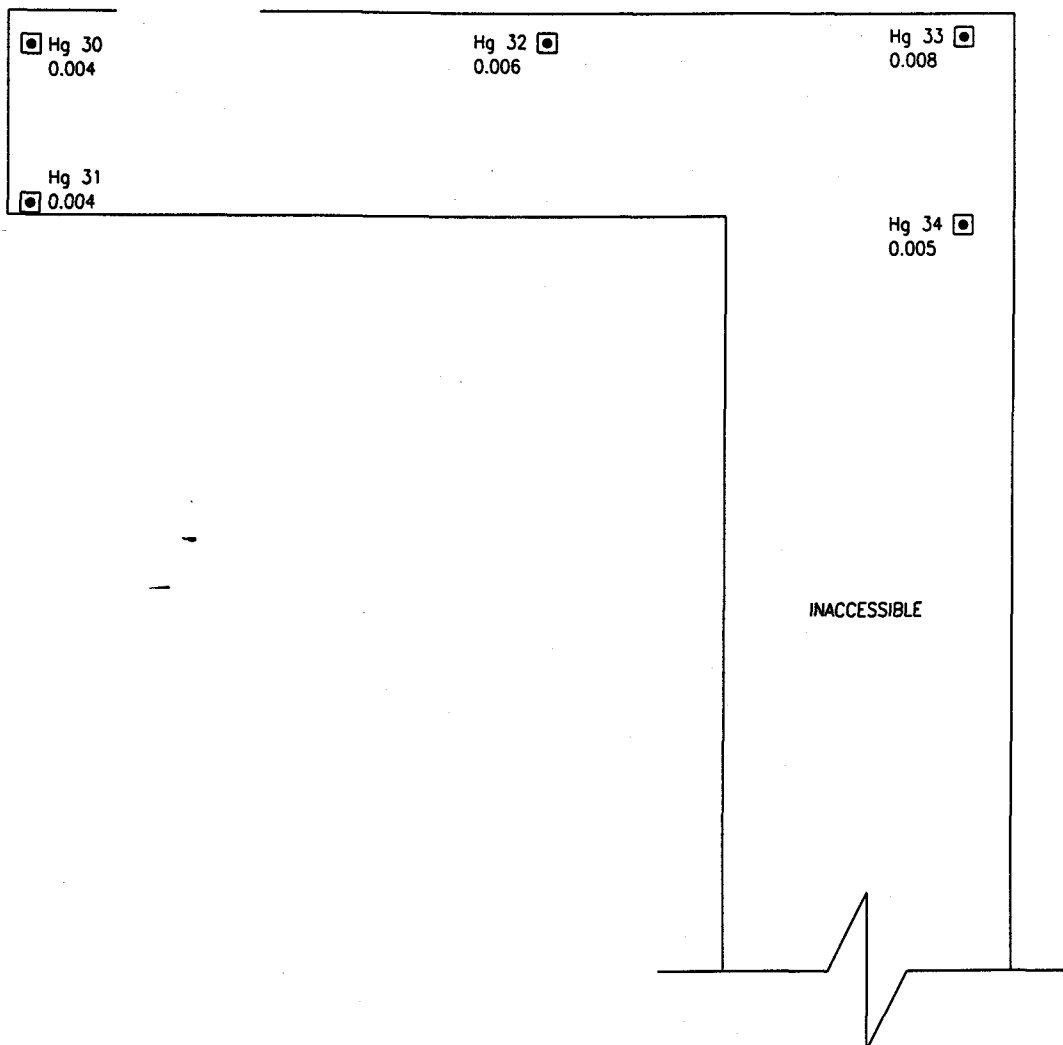
BZ BREATHING ZONE READING

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AIRCRAFT DIVISION
TRENTON, NEW JERSEY

AREA OF CONCERN 16
BUILDING 40 CONTROL ROOM
(GREEN ROOM)
MERCURY VAPOR SCREENING RESULTS

FIGURE

7



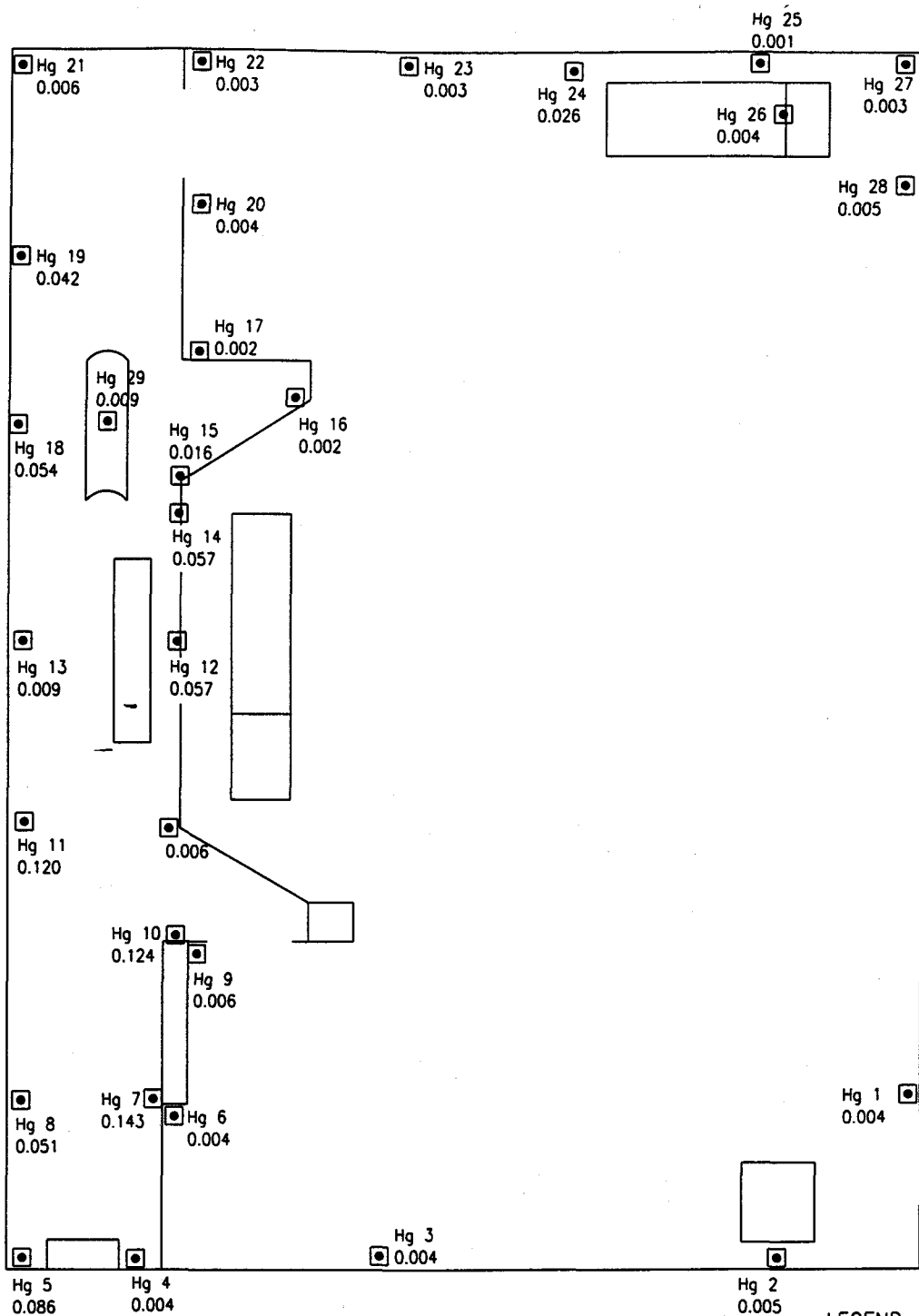
LEGEND

■ SAMPLE LOCATION
0.005 READING IN mg/m^3 OF Hg

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AREA OF CONCERN 16
BUILDING 40 CONTROL ROOM
(BEHIND CONTROLS)
MERCURY VAPOR SCREENING RESULTS

FIGURE
8



LEGEND

■ SAMPLE LOCATION

0.004 READING IN mg/m^3 OF Hg

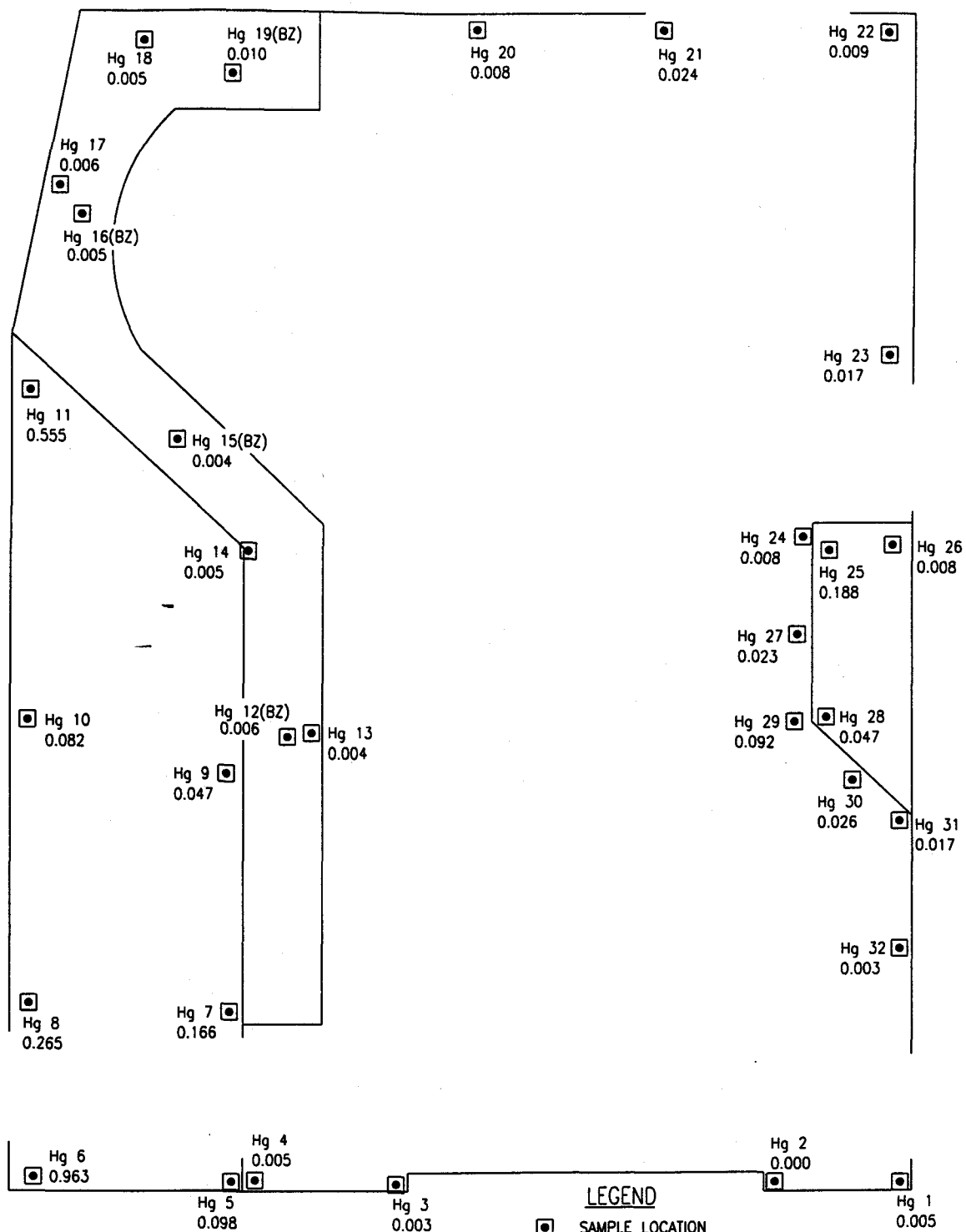
0.086 READING IN mg/m^3 OF Hg WHICH EXCEEDS THE NIOSH RECOMMENDED EXPOSURE LIMIT OF $0.05 \text{ mg}/\text{m}^3$ OF Hg

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TRENTON, NEW JERSEY

AREA OF CONCERN 26
(BUILDING 42 CONTROL ROOM)
MERCURY VAPOR SCREENING RESULTS

FIGURE

9



NAVAL AIR WARFARE CENTER
AIRCRAFT DIVISION
TRENTON, NEW JERSEY

AREA OF CONCERN 26A
(BUILDING 40 CONTROL ROOM - 1E)
MERCURY VAPOR SCREENING RESULTS

■ Hg 1
0.007

■ Hg 2
0.010

■ Hg 3
0.012

■ Hg 11
0.600

■ Hg 10
0.109

■ Hg 12
0.064

■ Hg 9
0.045

■ Hg 6
0.030

■ Hg 5
0.440

■ Hg 7
0.028

■ Hg 8
0.180

■ Hg 4
0.033

LEGEND

■ SAMPLE LOCATION

0.004 READING IN mg/m^3 OF Hg

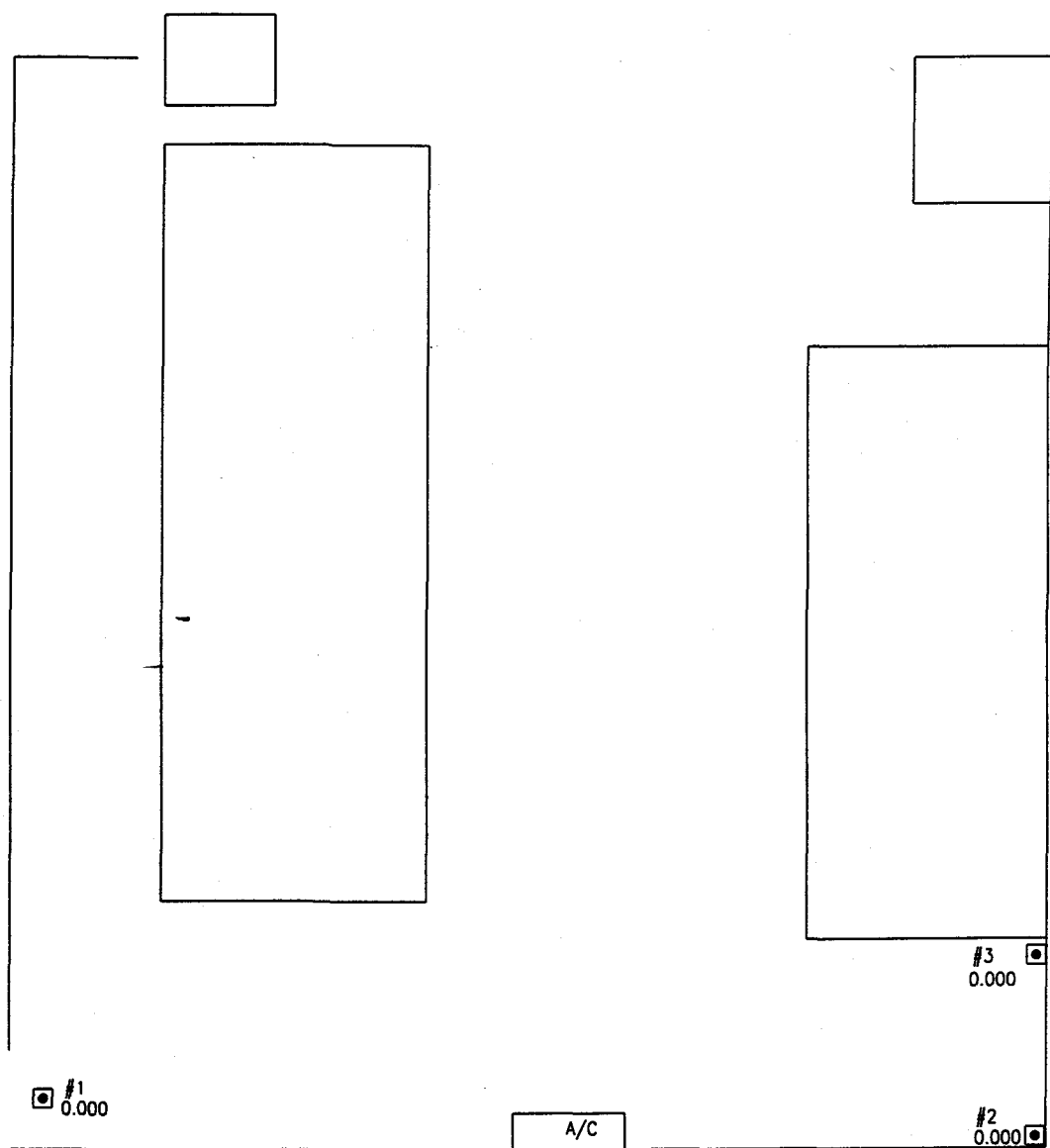
0.180 READING IN mg/m^3 OF Hg
WHICH EXCEEDS THE NIOSH
RECOMMENDED EXPOSURE
LIMIT OF $0.05 \text{ mg}/\text{m}^3$ OF Hg

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TRENTON, NEW JERSEY

AREA OF CONCERN 26A
(BUILDING 41 CONTROL ROOM - 2E)
MERCURY VAPOR SCREENING RESULTS

FIGURE

11



LEGEND

▣ SAMPLE LOCATION

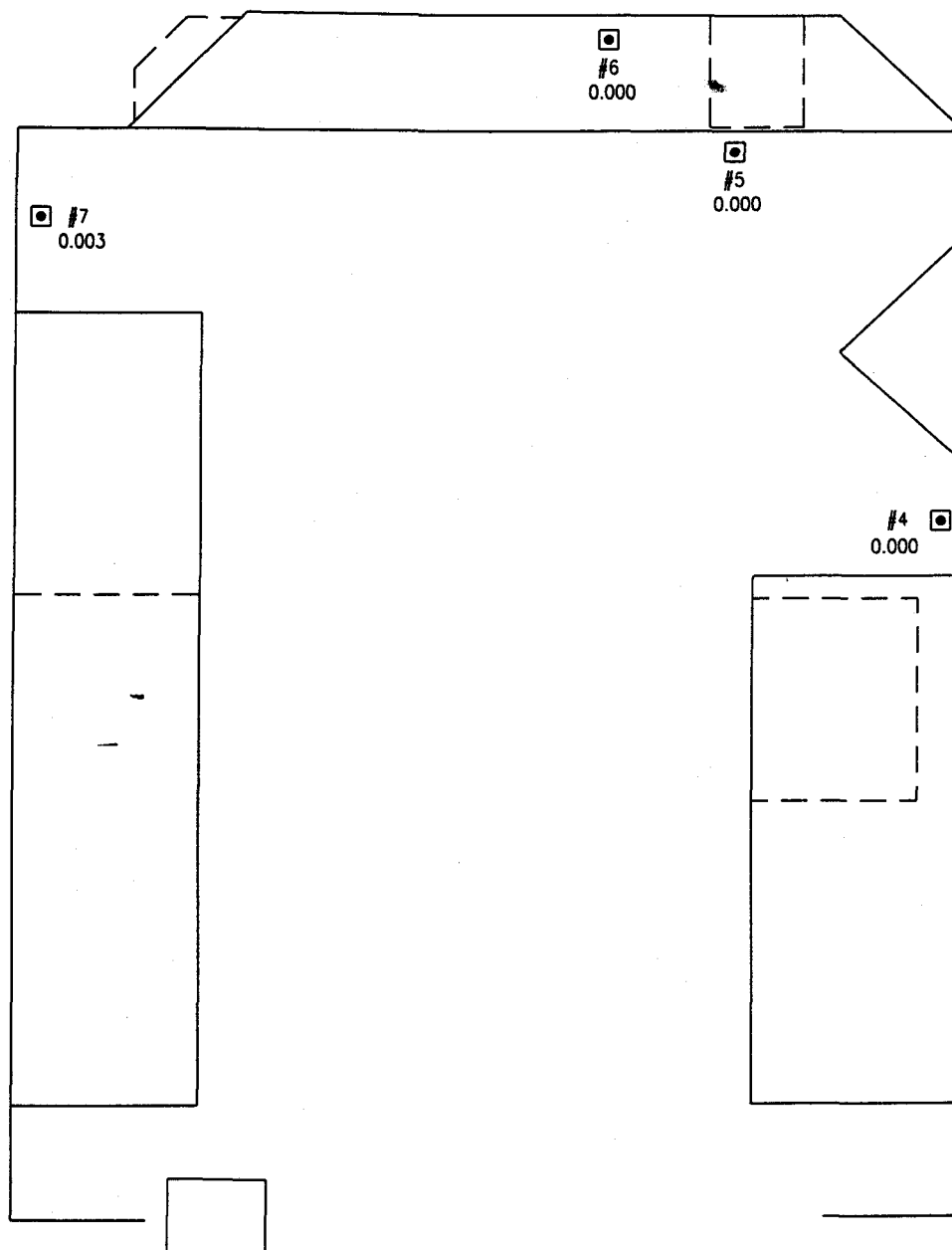
0.004 READING IN mg/m^3 OF Hg

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AIRCRAFT DIVISION
TRENTON, NEW JERSEY

NATIONAL NAVAL MEDICAL CENTER
MERCURY VAPOR SCREENING RESULTS
(9 May 1997)

BUILDING 40 CONTROL ROOM
(BLUE ROOM)

FIGURE
12



LEGEND

▣ SAMPLE LOCATION

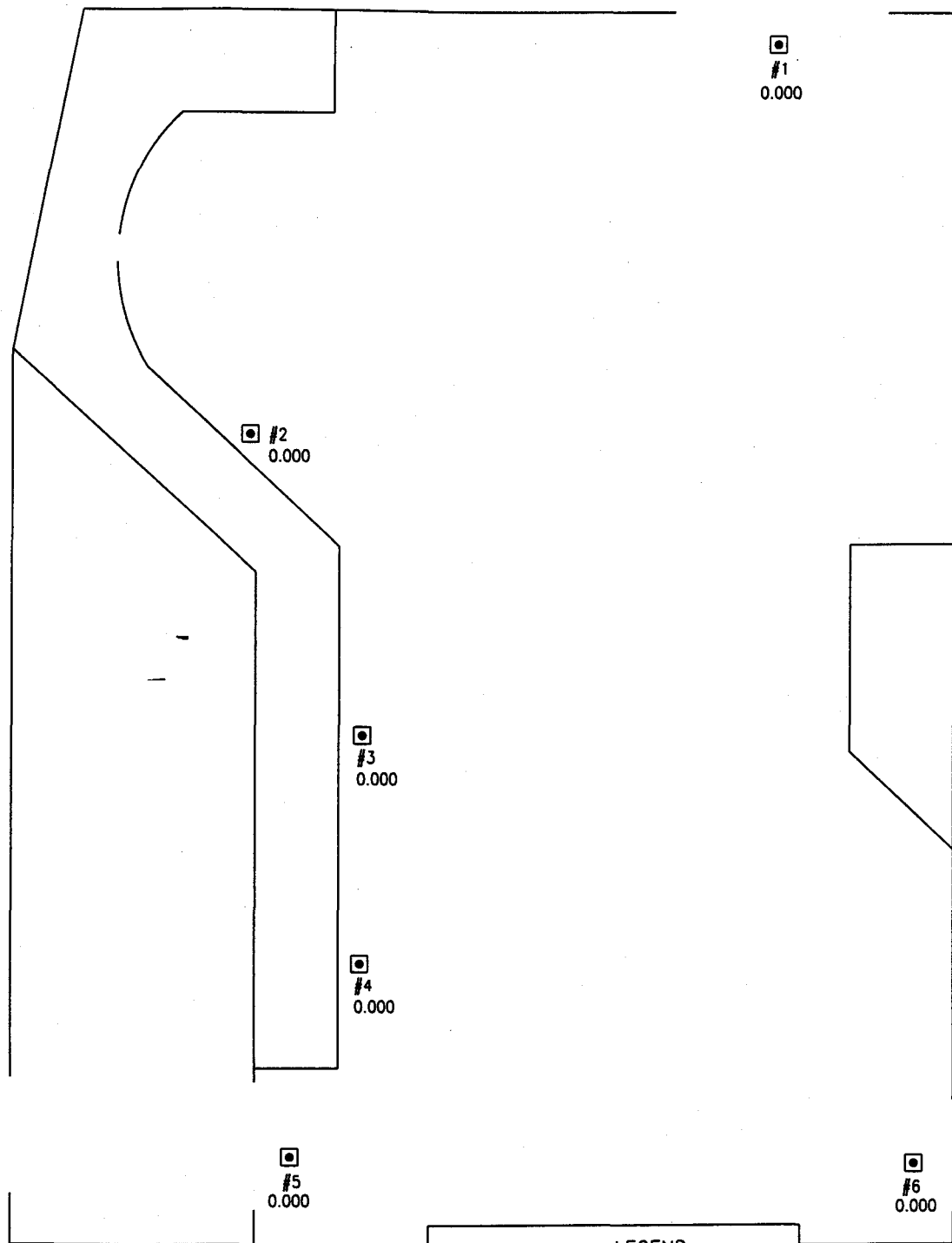
0.003 READING IN mg/m^3 OF Hg

NAVAL AIR ENGINEERING STATION
AIRCRAFT DIVISION
TRENTON, NEW JERSEY

NATIONAL NAVAL MEDICAL CENTER
MERCURY VAPOR SCREENING RESULTS
(9 May 1997)

BUILDING 40 CONTROL ROOM
(GREEN ROOM)

FIGURE
13



LEGEND

■ SAMPLE LOCATION

0.004 READING IN mg/m³ OF Hg

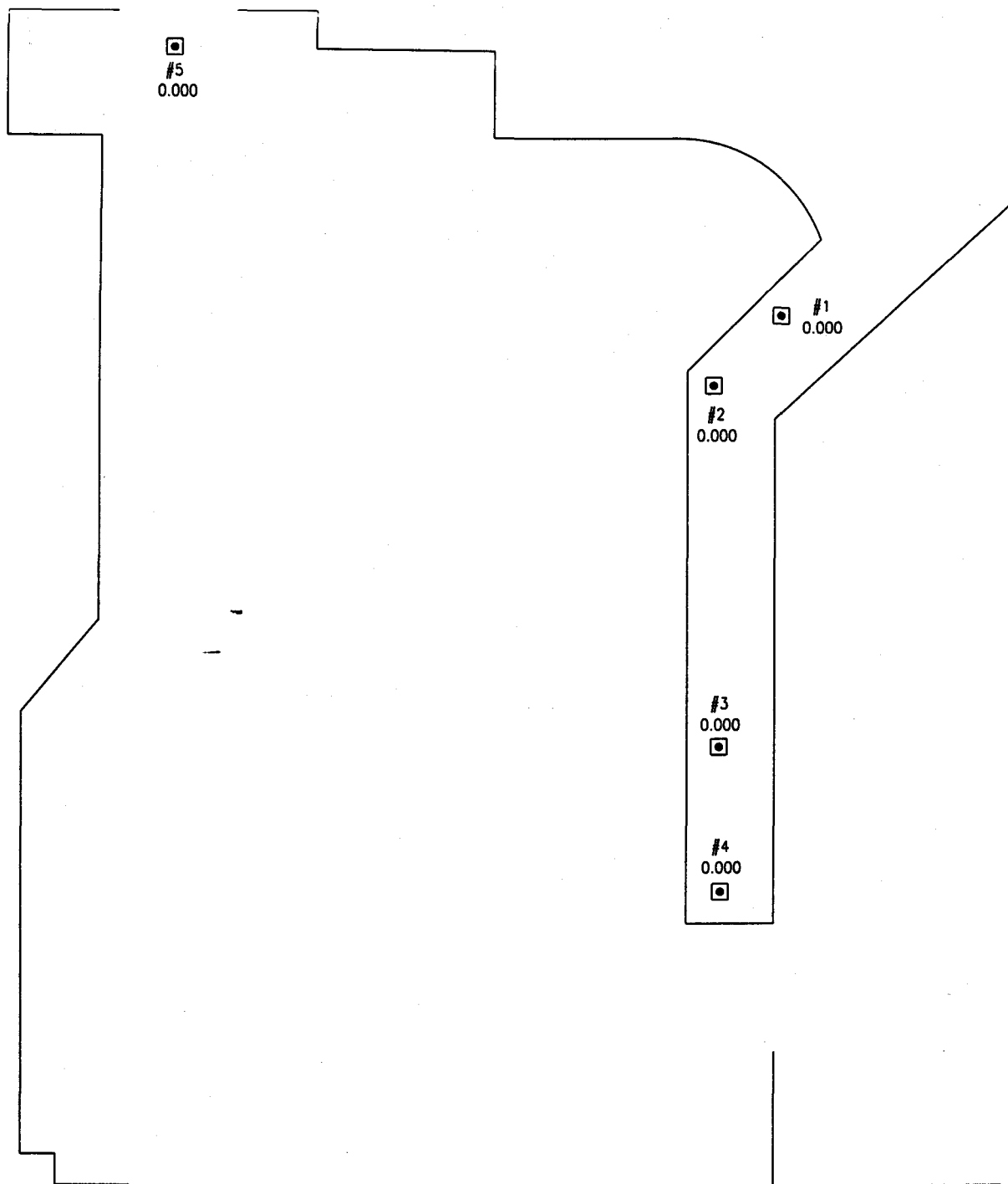
NAVAL AIR WARFARE CENTER
AIRCRAFT DIVISION
TRENTON, NEW JERSEY

NATIONAL NAVAL MEDICAL CENTER
MERCURY VAPOR SCREENING RESULTS
(9 May 1997)

(BUILDING 41 CONTROL ROOM - 1E)

FIGURE

14



LEGEND

□ SAMPLE LOCATION

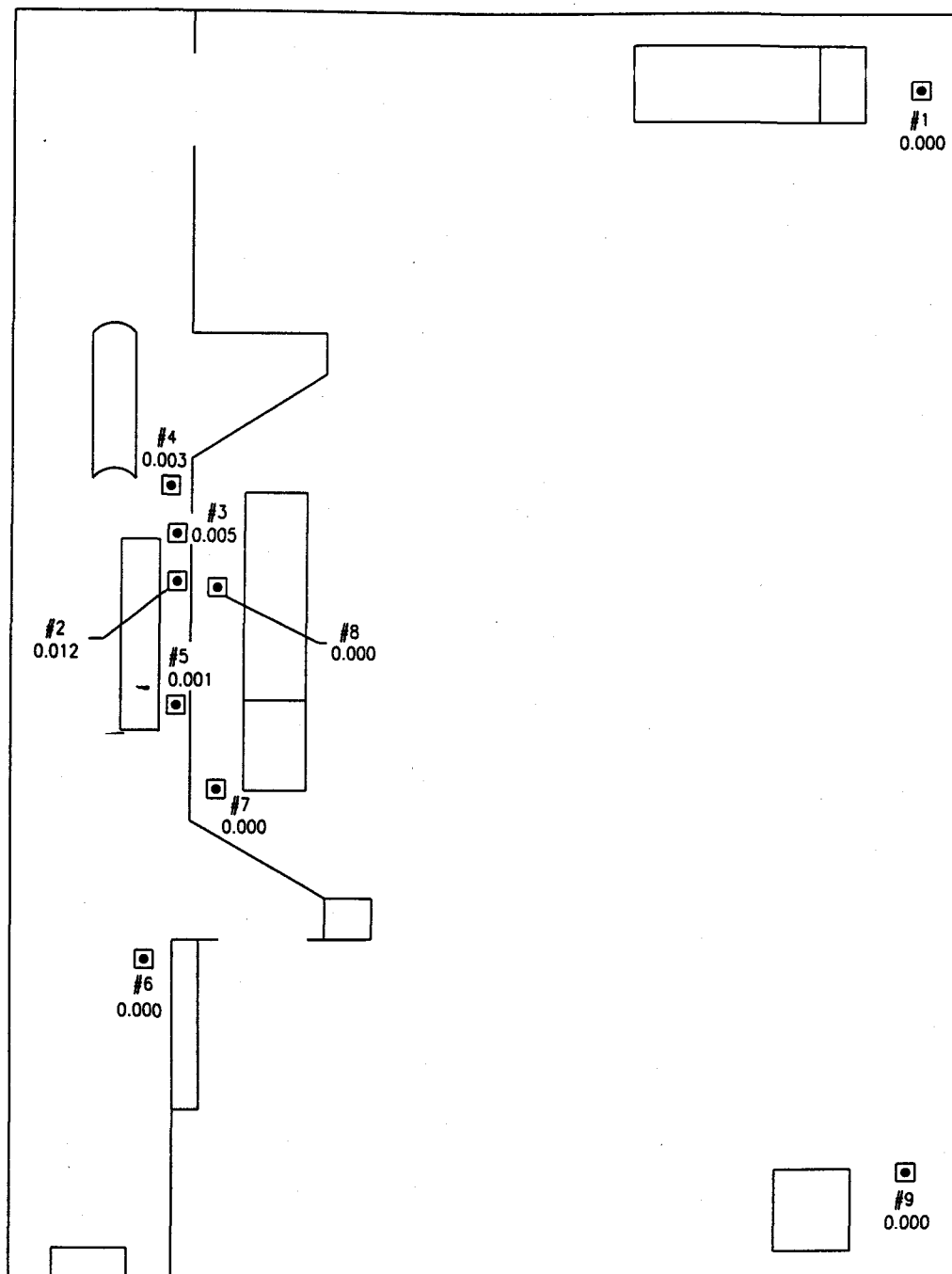
0.004 READING IN mg/m³ OF Hg

NAVAL AIR WARFARE CENTER
AIRCRAFT DIVISION
TRENTON, NEW JERSEY


NATIONAL NAVAL MEDICAL CENTER
MERCURY VAPOR SCREENING RESULTS
(9 May 1997)

(BUILDING 41 CONTROL ROOM - 2E)

FIGURE
15



LEGEND

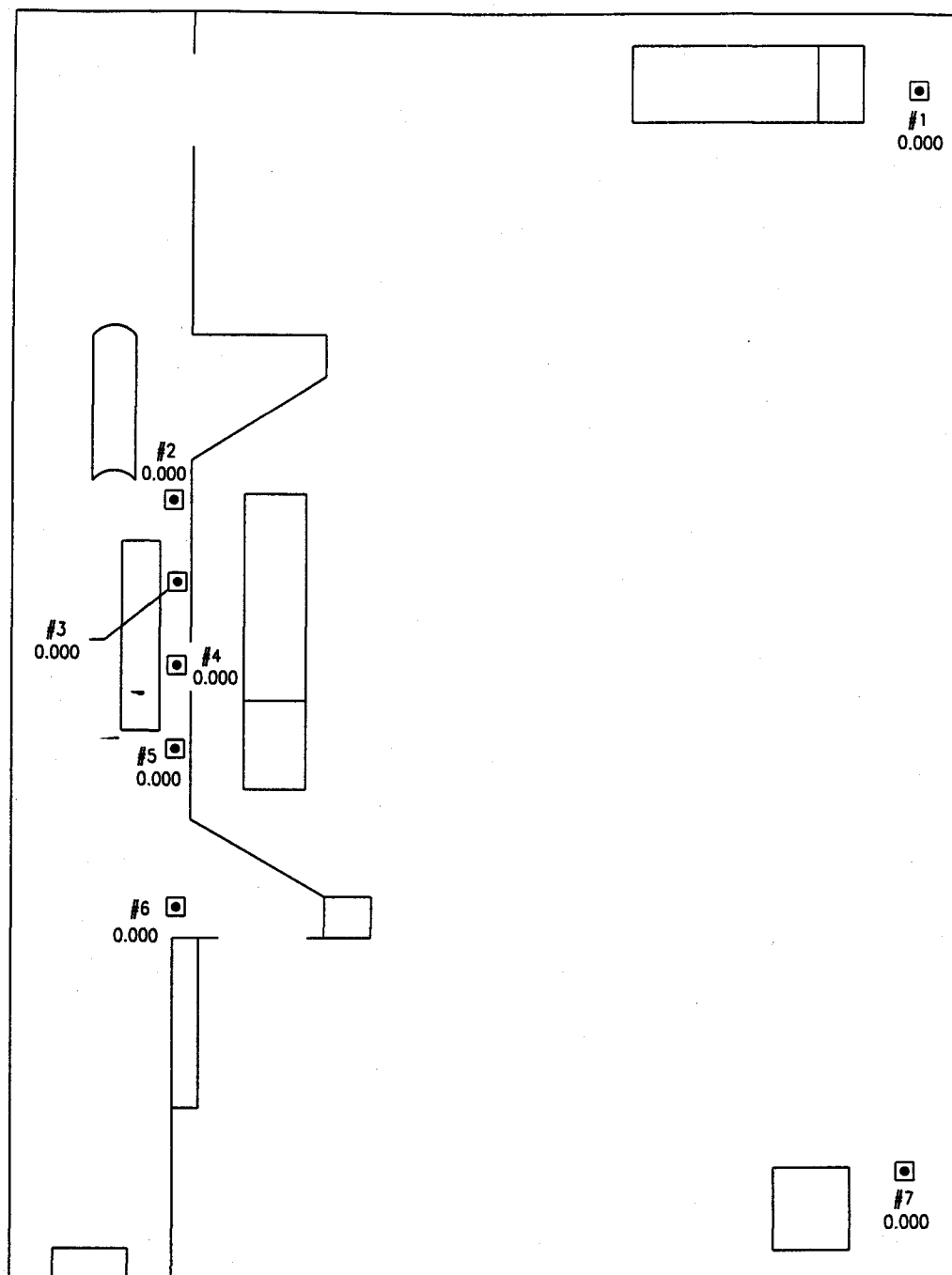
 SAMPLE LOCATION
 0.004 READING IN mg/m^3 OF Hg

NAVAL AIR WARFARE CENTER
 AIRCRAFT DIVISION
 TRENTON, NEW JERSEY

NATIONAL NAVAL MEDICAL CENTER
 MERCURY VAPOR SCREENING RESULTS
 (9 May 1997)

BUILDING 42 CONTROL ROOM

FIGURE
 16



LEGEND

■ SAMPLE LOCATION
 0.004 READING IN mg/m^3 OF Hg

NAVAL AIR WARFARE CENTER
 AIRCRAFT DIVISION
 TRENTON, NEW JERSEY

NATIONAL NAVAL MEDICAL CENTER
 MERCURY VAPOR SCREENING RESULTS
 (28 October 1997)

BUILDING 42 CONTROL ROOM

FOSTER WHEELER ENVIRONMENTAL CORPORATION

BY _____ DATE _____

SHEET _____ OF _____

CHKD. BY _____ DATE _____

OFS NO. _____ DEPT. NO. _____

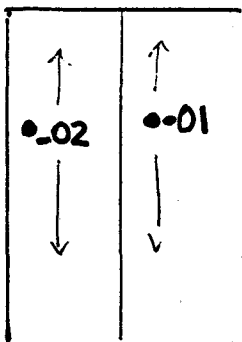
CLIENT NORR+DIV

PROJECT NAWC, TRENTON

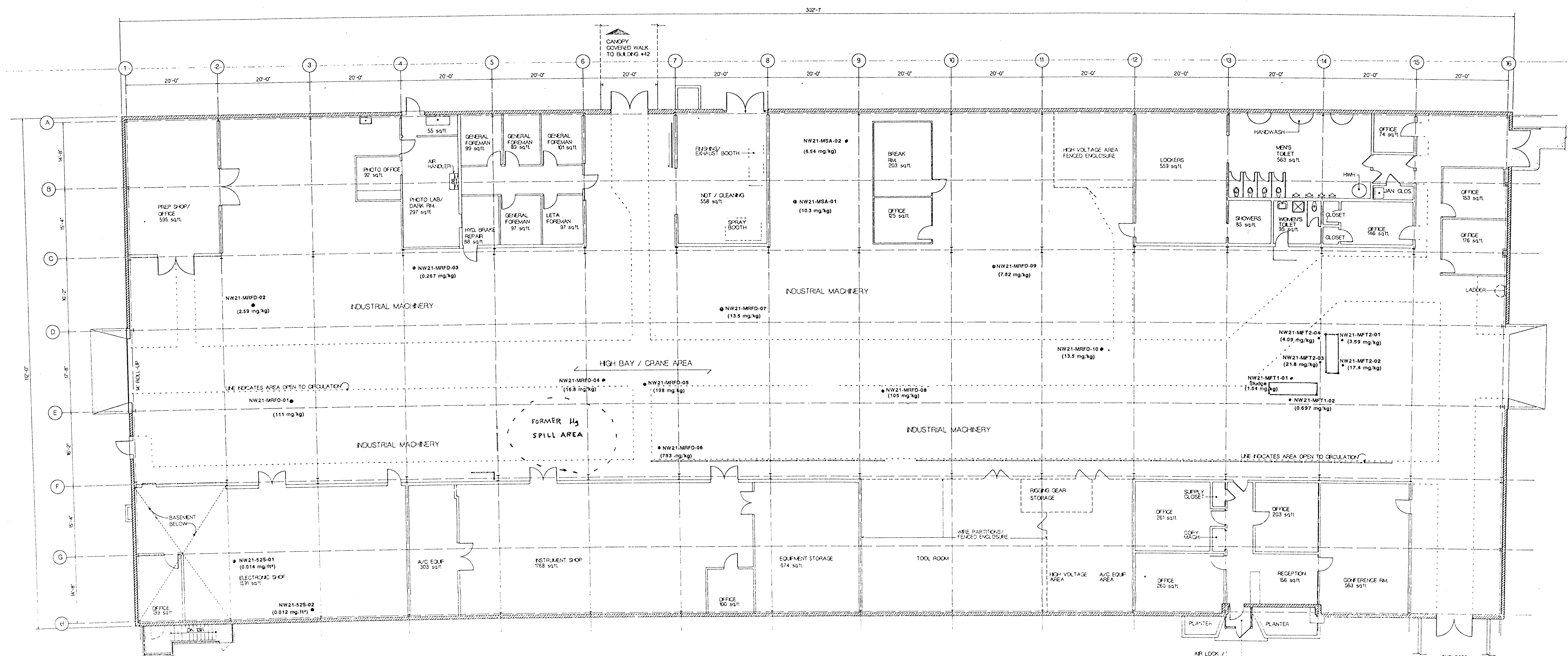
SUBJECT BUILDING 40 PERSONNEL ELEVATOR SAMPLING LOCATIONS

Elevator w/in Bldg 40

N ↑

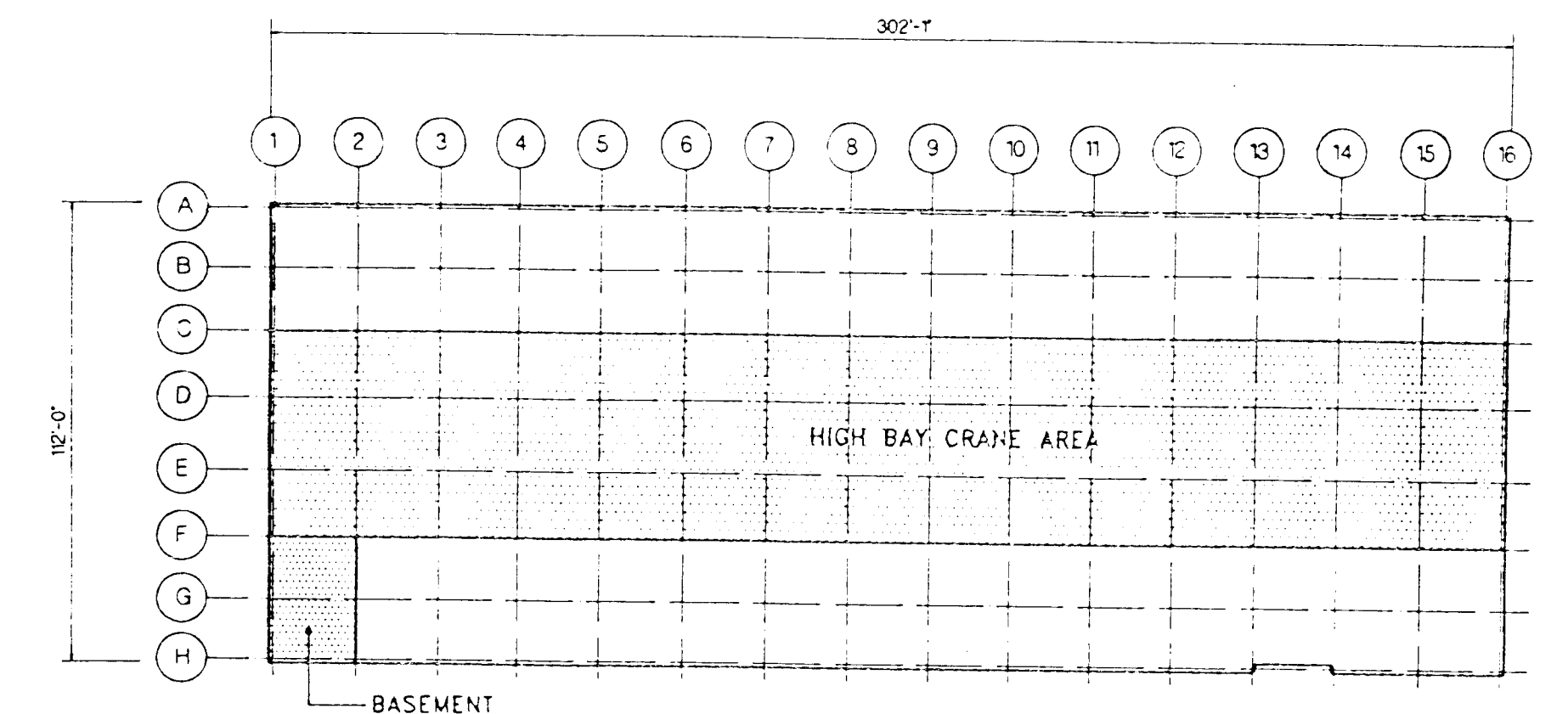


Full ID	Hg Result	Matrix
NW40 - PE01	12.0 mg/Kg	sludge
NW40 - PE02	25.9 mg/Kg	sludge



MERCURY CONFIRMATION SAMPLING CONDUCTED 7/6/98 AND 7/7/98

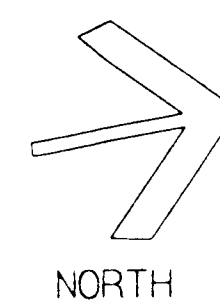
() - Mercury Result Wipe samples are expressed in mg/ft².
Results expressed in mg/kg are floor dust samples unless otherwise indicated.



GROSS AREA: BASEMENT = 600 sq.ft.
FIRST FLOOR = 33,824 sq.ft.
TOTAL = 34,424 sq.ft.

FIRST FLOOR PLAN
SCALE 1/8" = 1'-0"

GRAPHIC SCALE 0 1 3 5 FEET
2 4 6



BUILDING #21

CREATION Associates, P.C. ARCHITECTURE & PLANNING 555 Florida Grove Road Princeton, New Jersey 08540 (609) 750-1000 FAX: (609) 750-2793		ZONE LTR DESCRIPTION DATE APPROVED	
P.W. DWG. NO. 21-AS-1819-F2 MECH. CIVIL ELEC. ARCH. DRAWN: S.M. F.C. DIR. ENGR. DIV. A.P.W.O. APPROVED DATE PUBLIC WORKS OFFICER SATISFACTORY TO		REVISIONS DEPARTMENT OF THE NAVY-NAVAL FACILITIES ENGINEERING COMMAND NAVAL AIR PROPULSION CENTER TRENTON, NEW JERSEY BUILDING #21 PRODUCTION SHOP FIRST FLOOR PLAN SIZE CODE IDENT. NO. NAVAC. DRAWING NO. F 80091 CONSTR. CONTR. NO. SCALE: AS NOTED SPEC. SHEET 2 OF 2	

25043

FIGURE 19

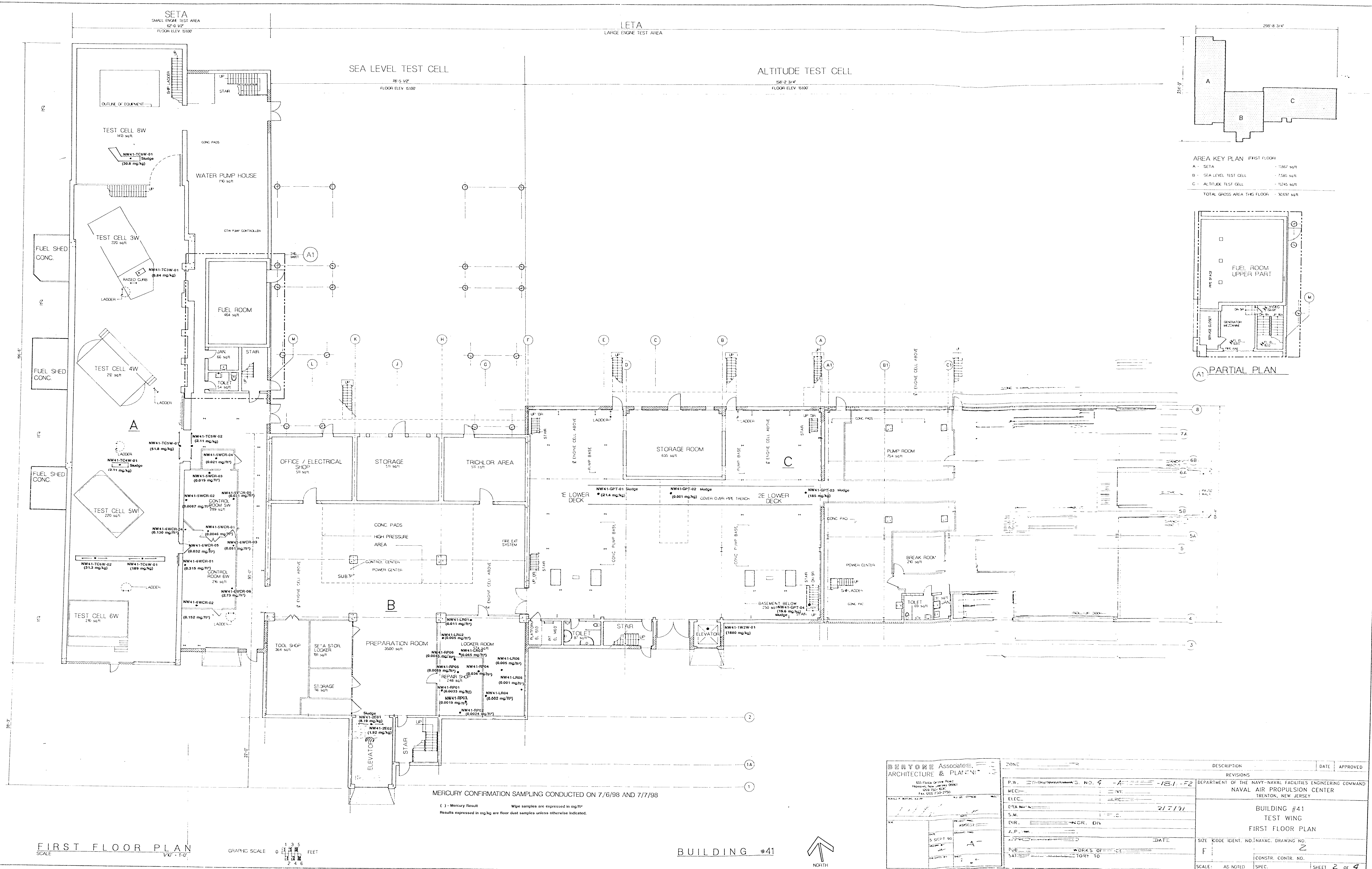


FIGURE 20

25034

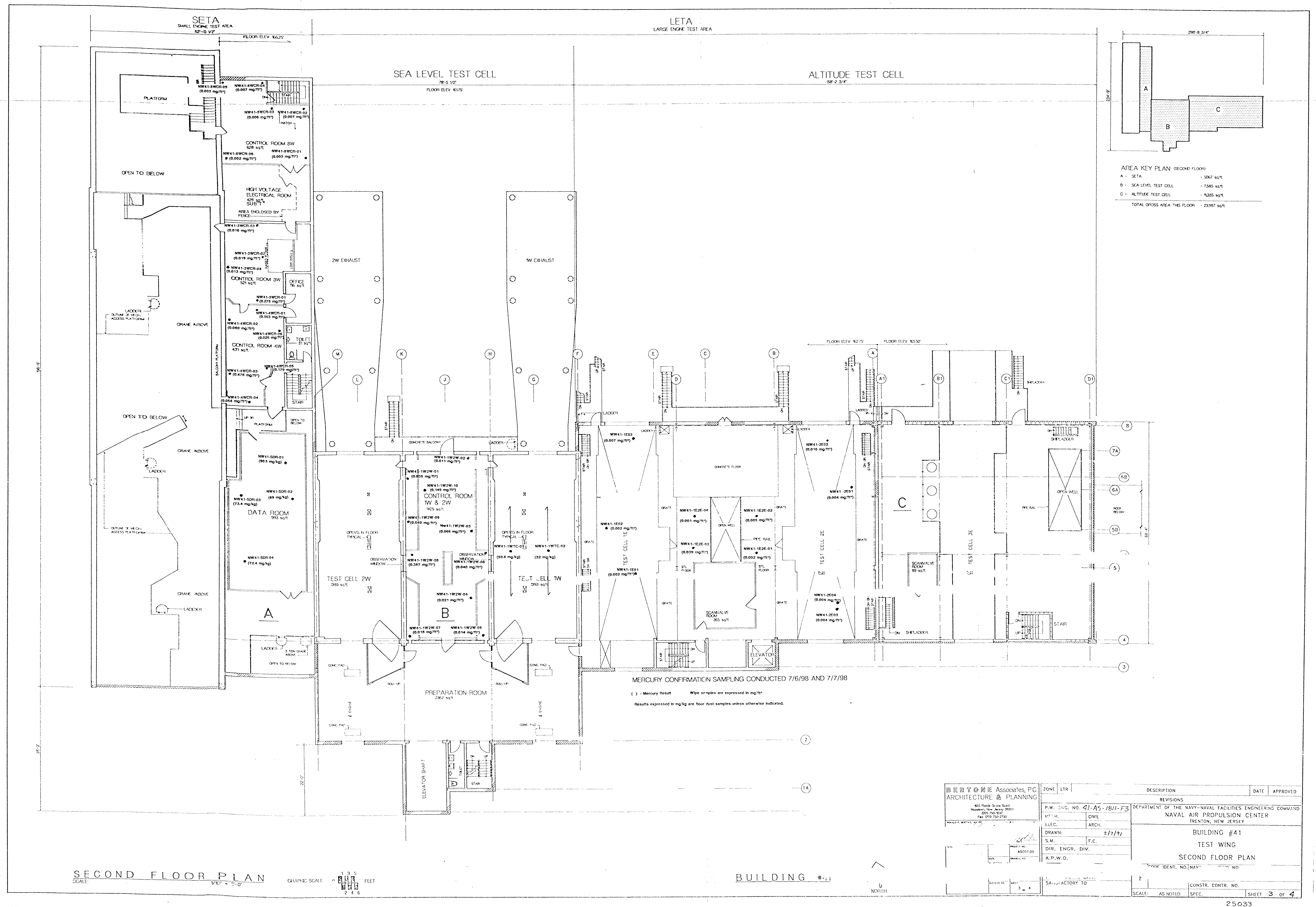


FIGURE 21